Section Copy _	of
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SECTION 2C. BRIQUETTING (AND OTHER AGGLOMERATION PROCESSES)

TECHNICAL INFORMATION HELP LINE: (800) 357-7075



IS BRIQUETTING OR ANY OTHER AGGLOMERATION PROCESS PERFORMED AT THIS SITE?

- G YES (CONTINUE)
- **G** No (Skip to Section 2D)

THROUGHOUT THIS SECTION, YOU WILL BE REQUIRED TO PROVIDE INFORMATION FOR <u>ALL</u> OPERABLE UNITS AND WATER SYSTEMS RELATED TO BRIQUETTING AND OTHER AGGLOMERATION PROCESSES WHICH WERE ON SITE DURING 1997, INCLUDING UNITS AND WATER SYSTEMS WHICH MAY HAVE BEEN IDLE FOR AN EXTENDED PERIOD OF TIME DUE TO CIRCUMSTANCES SUCH AS MARKET CONDITIONS, MAJOR REBUILDS, OR LABOR DISPUTES. IF AN OPERABLE UNIT OR WATER SYSTEM WAS NOT IN OPERATION DURING 1997, SUBSTITUTE THE MOST RECENT CALENDAR YEAR WHEN SUCH CIRCUMSTANCES DID NOT EXIST. NOTE THE YEAR OF OPERATION AND THE CIRCUMSTANCES IN THE COMMENTS AT THE END OF THIS SECTION, AND PROVIDE DATA FROM THAT CALENDAR YEAR

QT	ND)
OI	VF)

HOW MANY **OPERABLE BRIQUETTING OPERATIONS (AND OTHER AGGLOMERATION PROCESSES, NOT INCLUDING SINTERING)** WERE ON SITE DURING **1997**?

COMPLETE A COPY OF SECTION 2C FOR <u>EACH</u> OPERABLE AGGLOMERATION PROCESS. NUMBER EACH COPY OF SECTION 2C IN THE SPACE PROVIDED AT THE TOP OF EACH PAGE.

G CBI 2C-1. Provide the designation by which your site refers to this agglomeration process (e.g., Briquetting Plant C). G CBI 2C-2. Which type of agglomeration process (other than sintering, Section 2B) is this operation? **G** Briquetting **G** Nodulizing G Pelletizing G Other (specify): G CBI 2C-3. What was the first year of operation for this agglomeration process? G CBI 2C-4.a. What is the total rated capacity of this agglomeration process in tons per year of agglomerated product? tons/year (to three significant figures, e.g., 425,000 tons/year) G CBI b. What is the annual number of operating hours used to determine the total rated capacity? hours/year G CBI 2C-5.a. Is heating part of the agglomeration process? **G** Yes (continue) **G** No (SKIP to Question 2C-6) G CBI b. Indicate the method(s) your site uses to heat the agglomeration materials. Check (✓) ALL that apply. G Rotary kiln **G** Grate kiln **G** Vertical shaft furnace G Other (specify): G Other (specify): **G** Traveling grate

		Section Copy of	
G сві	2C-6.	What is the typical percent (%) moisture by weight of the agglomeration mixture as appl agglomeration line?	ied to the
		typical % by weight	
G сві	2C-7. a.	How much water, on average, is added to the agglomeration mixture to attain the desire content? If no water is added, check the box to the right and SKIP to Question 2C-8.	ed moisture G
		gpm hours per day	days per year
G СВІ	b.	Indicate <u>ALL</u> sources of water used to condition the agglomeration mixture. Provide the percentage of water contributed by each source. The percentages should add to 100 p	
		G Plant service water (city, well, or surface water which has not been used elsewhere on site)	%
		G Noncontact cooling water (specify manufacturing process(es)):	%
		G Treated process wastewater (specify manufacturing process(es)):	%
		G Untreated process wastewater (specify manufacturing process(es)):	%
		G Treated storm water (specify manufacturing process(es) or other collection area(s)):	%
		G Untreated storm water (specify manufacturing process(es) or other collection area(s)):	%
		G Other (specify):	%
			100 %
G СВI	2C-8. a.	Indicate whether natural or synthetic binding materials are used in the agglomeration pro G Natural binding material (continue) G Synthetic binding material (continue) G No (SKIP to Question 2C-9)	ocess.
G СВІ	b.	Provide a list of the principal ingredients (1% or more by weight) and include a copy of the safety data sheet (MSDS) for each binding material. Make sure this question number as (shown on the cover page of Part A) are on each MSDS in the upper right corner.	

	Section Copy of
:ві 2С-9.	Check (✓) <u>ALL</u> raw materials which were charged to this agglomeration process during 1997 .
	G Flue dusts from ironmaking
	G Flue dusts from steelmaking
	G Iron ores
	G Iron ore fines
	G Coal
	G Coke
	G Coke breeze
	G Mill scale
	G Limestone
	G Any iron-bearing material from off-site sources (specify):
	G Sludges from the blast furnace wastewater treatment system
	G Sludges from the basic oxygen furnace wastewater treatment system
	G Other wastewater treatment sludges (specify treatment system):
	G Other (specify):
	G Other (specify):

G CBI 2C-10. Provide annual production data for the agglomeration process for each of the five calendar years 1993 through 1997.

Year	Agglomerate Produced (tons/year)
1993	
1994	
1995	
1996	
1997	

Part A: Technical Information 2C-3 Section 2C: Briquetting

			Section Copy	of	Сору	of
	STOP	HOW MANY OPERABLE WET AIR POLLUTION AGGLOMERATION PLANT DURING 1997 ? A WAPC				PROCESSING
		COMPLETE A COPY OF QUESTION 2C-11 FOR <u>EAC</u> IN THE SPACE PROVIDED IN THE UPPER RIGHT CORN				ESTION 2C-11
		IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION		ED WITH THIS AGGLO	MERATION PROCESS	_
		BOX TO THE RIGHT AND SKIP TO QUESTION 2C-12	. .			G
G СВІ	2C-11. a.	Provide the designation(s) of all operation WAPC system is already provided elsewh the right, and SKIP to Question 2C-12.		•		
G СВІ	b.	This WAPC system controls emissions fro apply. G Raw material handling, preparation, a		ollowing process	es? Check (🗸) <u>/</u>	\LL that
		G Entry end of the agglomeration proce	ŭ			
		G Agglomerate cooling	00			
		G Building evacuation				
		G Other (specify):				
G СВІ	C.	Indicate the devices in this WAPC system	. Check (✓) <u>ALL</u>	that apply.		
		G Venturi scrubber	G I	Demister		
		G Spray chamber		Packed tower		
		G Evaporation chamber				
		G Separator	G	Other (specify):		
G СВІ	d.	Provide the gas or air flow through the sys	stem in dry standa	ard cubic feet pe	er minute (dscfm)	
		dscfm				
G СВІ	e.	Is the water recirculated or applied once-t G Recirculated (continue) G Once-through (SKIP to Question 2C-1	-			
G СВІ	f.	Is any treatment and/or conditioning (e.g., G Yes (continue) G No (SKIP to Question 2C-11.j.)	chemical additio	ns) performed ir	n the recirculating	J loop?
G СВІ	g.	Does the treatment in the recirculating loc G No - Dedicated treatment G Yes - Treatment shared with other pro-		ewater from othe	er processes?	
		Specify the processes:				
		specify the processes.				

			Section Copy	of	Сору	of
		COMPLETE A COPY OF QUESTIO	N 2C-11 FOR <u>EACH</u>	OPERABLE WAPC	SYSTEM.	
G сві	2C-11. h.	Check (✓) <u>ALL</u> treatment units and/or	treatment process	es which are inclu	ded in the recirc	ulating loop.
	(cont.)	G Clarifiers	G	Oil skimmers		
		G Classifiers	G	Scale pits		
		G Cooling towers	G	Sludge dewatering	ng units (e.g., va	cuum filter,
		G Earthen Lagoons		pressure filtration	n, etc.)	
		G Lined (specify liner type):	G	Water filters (e.g	., sand, multime	dia, etc.)
		G Clay	G	Water softeners		
		G Synthetic	G	Other (specify):		
		G Other (specify):	_	Other (specify):		
		G Unlined	G	None		
G сві	i	Indicate chemical additions to the water	er recirculation syst	em Check (/) A	II that annly	
O 05.	1.	G Acid	-	Scale inhibitor	<u>LL</u> that apply.	
		G Caustic (sodium hydroxide)		Surfactant		
		G Corrosion inhibitor	_	Other (specify):		
		G Lime		Other (specify):		
		G Polymer	G	None		
G сві	j.	Provide the design flow of water throu	gh the recirculating	loop.		gpm
G сві	k.	Provide the average recirculation rate	of water through th	e WAPC system a	and period of ope	eration.
		gpm	hours per o	day	day	's per year
G СВІ	I.	Provide the average rate at which new the influent flow rate; for recirculating				ms, provide
		gallons	oer day		day	s per year

			Section Copy of	CO	ру о	'I
		COMPLETE A COPY OF	QUESTION 2C-11 FOR EACH OPERABLE WAPO	C system.		
G сві	2C-11.m. (cont.)	Indicate <u>ALL</u> sources for water The percentages should add t	r addition. Provide the percentage of water o 100 percent.	· contributed	d by each so	ource.
		G Plant service water (city, v elsewhere on site)	vell, or surface water which has not been us	sed _		%
		G Noncontact cooling water	(specify manufacturing process(es)):			%
		G Treated process wastewar	ter (specify manufacturing process(es)):			%
		G Untreated process wastew	vater (specify manufacturing process(es)):			%
			cify manufacturing process(es) or other coll			%
			pecify manufacturing process(es) or other c			%
		G Other (specify):		_		%
		() //			100	
G сві	n.	provide the blowdown rate).	e rate from the system and period of discha			
		gpm	hours per day		days pe	r year
		OR:	gallons per day		days pe	r year
G СВІ	0.		stewater discharge or blowdown. Check (✓)	•		
		G Discharge without treatment by pipeline, sewer, or other conveyance to surface				
			ent by pipeline, sewer, or other conveyance tion):		specify desi	ignation
		<u>-</u>	ent by pipeline, sewer, or other conveyance nitoring location if applicable):			
		G Zero discharge or alternat				
		G Deep-well injection	and the arth			
		G Evaporation (specify r	method):			
		G Spray irrigation				
		G Contract hauled				
			including transportation): \$isposal method):			
		G Incineration				
		G Other (specify):				
		· · · · ·	-			

Part A: Technical Information 2C-6 Section 2C: Briquetting

Section Copy of

G CBI 2C-12.a. Are any dry air pollution control (DAPC) systems associated with this agglomeration process?

G Yes (continue)

G No (SKIP to Question 2C-13)

G CBI b. Indicate the process associated with DAPC systems on the agglomeration process. Check (✓) <u>ALL</u> that apply. For each process checked, indicate the type of DAPC system.

	Process	Type of DAPC System	
G	Raw material handling, preparation, and storage associated with the agglomeration process	G Fabric filter (i.e., baghouse)G Electrostatic precipitatorG Other (specify):	
G	Entry end of the agglomeration process	 G Fabric filter (i.e., baghouse) G Other (specify): 	
G	Agglomerate cooling	 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify): 	
G		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify): 	
G	Other (specify):	 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify): 	
G	Other (specify):	 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify): 	
G	Other (specify):	G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):	

Part A: Technical Information 2C-7 Section 2C: Briquetting

			Section Copy	of	Сору	of
	STOP	EXCLUDING WAPC SYSTEM AGGLOMERATION OPERATIONS	S AND STORM WATER, HOW MANY OT ARE PRESENT?	THER WASTEWATER	SOURCES FROM	
			ON 2C-13 FOR <u>EACH</u> AGGLOMERAT 3 IN THE SPACE PROVIDED IN THE UF			
			RATION PROCESS SOURCES WHICH O STEM OR STORM WATER, CHECK THE			
	2C-13.	Provide information for the age	glomeration process and relate	ed on-site waste	water generatin	g sources.
G СВІ	a.	Indicate the source of process If there is more than one source process source.				
		G Raw material handling, pro	eparation, and storage			
		G Agglomerate cooling				
		G Equipment cleaning and w	vashdown water			
		G Other (specify):				
Э СВІ	b.	Provide a list of chemicals or p wastewater. If a list is readily a written on the upper right corn solution (e.g., solutions used t product and the product code,	available, attach it to the surve er. If a chemical or pollutant of o clean and wash equipment).	ey with this quest originates from a	tion number and a commercial cle	your site ID eaning
						
G СВІ	C.	Provide the wastewater flow ra	ate and period of discharge as	sociated with the	e source checke	d above.
		gpm	hours per day		days	s per year
		OR:	gallons per da	ay	days	s per year

	Сомр	LETE A COPY OF QUESTION 2C-13 FOR <u>EACH</u> AGGLOMERATION SOURCE GENERATING PROCESS WASTEWATER NOT ASSOCIATED WITH A WAPC SYSTEM OR STORM WATER.
G СВІ	2C-13.d. (cont.)	Indicate the destination of this wastewater stream. Check (✓) <u>ALL</u> that apply. G Discharge to treatment (specify treatment system):
		G Discharge without treatment by pipeline, sewer, or other conveyance to surface water (specify outfall number):
		G Discharge without treatment by pipeline, sewer, or other conveyance to POTW (specify designation for permit monitoring location):
		G Discharge without treatment by pipeline, sewer, or other conveyance to PrOTW (specify designation for permit monitoring location if applicable):
		G Zero discharge or alternative disposal methods: G Deep-well injection G Evaporation (specify method): G Percolation ponds
		G Spray irrigation G Contract hauled (specify disposal rate, including transportation): \$ per gallon (specify destination/disposal method):

G Other (specify):

G Incineration

Copy ____ of _

Section Copy of

G CBI 2C-14. Provide information on any major process modifications and/or shut downs which have occurred for this agglomeration process since 1993.

Shut Down or Modification?	Date	Description

G CBI 2C-15. Provide information on any publicly announced process modifications and/or shut downs planned to occur during the next five years (1998 to 2002) at the agglomeration process.

Shut Down or Modification?	Anticipated Date	Description

Section Copy	of
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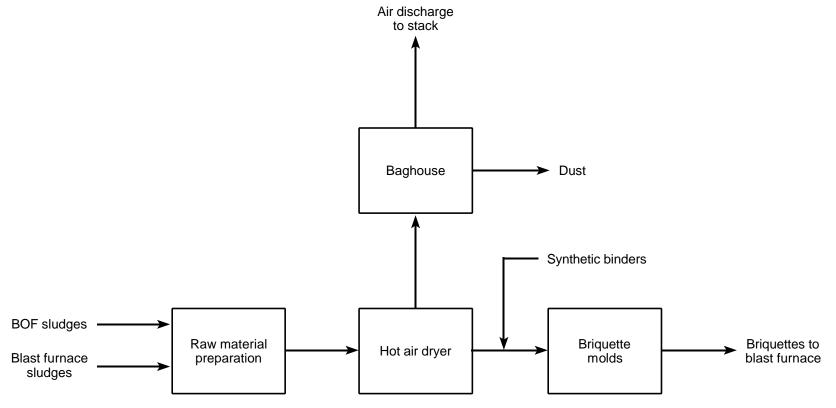
Indicate <u>ALL</u> pollution prevention (waste reduction) or management practices implemented by your site for the agglomeration process and describe the practice as it is implemented. Describe all processes where by-products and wastes are recovered for reuse or sold as a raw material feedstock. Discuss the percent recovered.

	Management Practices	Description of Practice
G	Management of spillage and losses from raw material handling operations associated with this agglomeration process	
G	Management of runoff from raw material or product storage piles associated with this agglomeration process	
G	Management of fugitive discharges of process wastewaters and materials to the agglomeration process noncontact cooling	
G	Surveillance and corrective action programs for oil discharges from large NCCW flows associated with this agglomeration process	
G	Collection and treatment and/or disposal of storm water from any areas associated with the agglomeration process (specify manufacturing processes or other collection areas in the description)	
G	Collection and treatment and/or disposal of landfill leachate from any landfills associated with this agglomeration process	
G	Collection and treatment and/or disposal of contaminated ground water associated with this agglomeration process	
G	Other (specify):	
G	Other (specify):	
G	Other (specify):	

Part A: Technical Information 2C-11 Section 2C: Briquetting

		Section Copy or	
Э СВI	2C-17.	Attach a process flow diagram (PFD) that shows this agglomeration process and the water use associated with the process. You are <u>NOT</u> required to create a new PFD if an existing diagram wi suffice. Number the diagram in the upper right corner, and include your site ID number (as shown the cover page of Part A). Specific instructions for including the PFD, along with an example diagram provided below. Flow rates are <u>NOT</u> required on the diagrams.	n on
		Provide the PFD number assigned to this agglomeration PFD. If the process is already shown of PFD provided elsewhere in this survey, provide the PFD number and review the following licompleteness. If you need assistance, call the Technical Information Help Line at (800) 357-707	ist fo
		Agglomeration process PFD	
		Process Flow Diagram Checklist	
		Be sure	1
		All agglomeration operations are included. Include those operations which do not generate process wastewater.	G
		All air pollution control systems are included. Label each system as being either wet or dry. Water streams for all wet air pollution control systems must be shown, including all recycle streams and all treatment processes within recycle loops.	G
		Any recycle or reuse of process wastewater or other waters is indicated clearly on the diagram.	G
		Any in-process wastewater treatment or reuse technologies are indicated. Show and label all treatment units and all recycle loops.	G
		Significant losses of water (e.g., evaporation) are shown.	G
		All materials entering each operation and all products and wastes exiting each operation are identified. Wastes include wastewater, sludges, baghouse dust, and point-source air emissions. Noncontact cooling water systems which do not contain process wastewater and do not discharge to process wastewater systems do not need to be included.	G
		All process wastewater streams are identified. When sources and destinations of process wastewater are not shown on the diagram (i.e., the stream is entering from or exiting to a location not shown on the diagram), describe the source or destination (e.g., "from river" or "to wastewater treatment") and add the PFD number, when appropriate, where the stream's previous or next location can be seen.	G
		The PFD number and your site ID number are written on the diagram.	G
		If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.	G

Site ID XXXX



Agglomeration Process (Briquetting) Example Process Flow Diagram

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Section Copy	Oī	Copy	OT	

COMMENTS FOR SECTION 2C: BRIQUETTING (AND OTHER AGGLOMERATION PROCESSES)

Cross reference your comments by question number and indicate the confidential status of your comment by checking () the box in the column titled "CBI" (Confidential Business Information). If you need additional space, photocopy this page before writing on it and number each copy in the space provided in the upper right corner.

Question Number	CDI	Comment
Number	CBI	Comment
	G	
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	G	

SECTION 2D. BLAST FURNACE IRONMAKING

TECHNICAL INFORMATION HELP LINE: (800) 357-7075



IS BLAST FURNACE IRONMAKING PERFORMED AT THIS SITE?

G YES (CONTINUE)

blast furnace.

G No (SKIP TO SECTION 2E)

THROUGHOUT THIS SECTION, YOU WILL BE REQUIRED TO PROVIDE INFORMATION FOR <u>ALL</u> OPERABLE UNITS AND WATER SYSTEMS RELATED TO BLAST FURNACE IRONMAKING WHICH WERE ON SITE DURING 1997, INCLUDING UNITS AND WATER SYSTEMS WHICH MAY HAVE BEEN IDLE FOR AN EXTENDED PERIOD OF TIME DUE TO CIRCUMSTANCES SUCH AS MARKET CONDITIONS, MAJOR REBUILDS, OR LABOR DISPUTES. IF AN OPERABLE UNIT OR WATER SYSTEM WAS NOT IN OPERATION DURING 1997, SUBSTITUTE THE MOST RECENT CALENDAR YEAR WHEN SUCH CIRCUMSTANCES DID NOT EXIST. NOTE THE YEAR OF OPERATION AND THE CIRCUMSTANCES IN THE COMMENTS AT THE END OF THIS SECTION, AND PROVIDE DATA FROM THAT CALENDAR YEAR.

G сві	2D-1.	How many operable blast furnaces were on site during 1997?
G сві	2D-2.	Provide a list of the operable blast furnaces at this site. Use the site designation for each blast furnace on the list (e.g., No. 1 blast furnace).
G CBI	2D-3	Identify which blast furnaces use shared water systems for the recycle of process wastewater. The

	Water System #1	Water System #2	Water System #3
Blast Furnace Designations			
(corresponding to			
Question 2D-2)			

water systems referred to in this question are the systems used to clean and cool gases exiting the

			Сору	of
	HOW MANY OPERABLE BLAST FURNACES WERE ON SIT	E DURING 1997 ?		
STOP	COMPLETE A COPY OF QUESTION 2D-4 FOR EACH OPERABLE 4 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE			
2D-4. a.	Provide the site designation for this blast furnace. The building with a response to Question 2D-2.	olast furnace desigr	nation should co	orrespond
b.	What year was iron first produced in this blast furnace?			
C.	What is the total rated capacity of this blast furnace in to	ns per year of iron?	>	
	tons/year (to three significant figure	es, e.g., 953,000 tor	ns/year)	
d.	What is the annual number of operating hours used to d	etermine the total r	ated capacity?	
d.	What is the annual number of operating hours used to d	etermine the total r	ated capacity?	
d. e.	•	etermine the total r	ated capacity?	
	hours/year	etermine the total r		month/year)
	hours/year Provide reline information for this blast furnace.	etermine the total r	(• '
	Provide reline information for this blast furnace. Date of last major reline completed: Next anticipated major reline (best current		(month/year) month/year)
e.	Provide reline information for this blast furnace. Date of last major reline completed: Next anticipated major reline (best current projection):	furnace.	(
e.	hours/year Provide reline information for this blast furnace. Date of last major reline completed: Next anticipated major reline (best current projection): Provide the typical operating characteristics of this blast	furnacepsig	(
e.	Provide reline information for this blast furnace. Date of last major reline completed: Next anticipated major reline (best current projection): Provide the typical operating characteristics of this blast Operating top pressure:	furnace. psig °F	(
e.	hours/year Provide reline information for this blast furnace. Date of last major reline completed: Next anticipated major reline (best current projection): Provide the typical operating characteristics of this blast Operating top pressure: Operating top temperature:	furnace. psig °F	(

Year	Iron Produced (tons of hot metal tapped/year)
1993	
1994	
1995	
1996	
1997	

Copy _	of
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Total ______%

COMPLETE A COPY OF QUESTION 2D-4 FOR <u>EACH</u> OPERABLE BLAST FURNACE.

G сві	2D-4. h.	Indicate ALL sources of water used for moisture addition to the burden or to the furnace. Provide the
	(cont.)	estimated percentage of water contributed by each source. The percentages should add to 100
		percent

pei	oent.	
G	Plant service water (city, well, or surface water which has not been used elsewhere on site)	9
G	Noncontact cooling water (specify manufacturing process(es)):	9
G	Treated blast furnace wastewater	9
G	Treated process wastewater (specify manufacturing process(es)):	9
G	Untreated process wastewater (specify manufacturing process(es)):	9
G	Treated storm water (specify manufacturing process(es) or other collection area(s)):	%
G	Untreated storm water (specify manufacturing process(es) or other collection area(s)):	9
G	Other (specify):	%

G None

G CBI i. Check (✓) <u>ALL</u> iron-containing raw materials charged to this blast furnace. Indicate the typical pounds charged per net ton of hot metal manufactured.

Raw Material	Pounds Charged Per Ton of Hot Metal Tapped
G Iron - ore	
G Iron - pellets	
G Iron - sinter	
G Iron - briquetted materials	
G Iron - mill scale	
G Iron - flux pellets	
G Iron - BOF slag	
G Iron - scrap	
G Iron - Other (specify):	
G Iron - Other (specify):	
G Iron - Other (specify):	

COMPLETE A COPY OF QUESTION 2D-4 FOR EACH OPERABLE BLAST FURNACE.

G CBI 2D-4.j. Check (✓) <u>ALL</u> non-iron-containing raw materials charged to this blast furnace. Indicate the typical quantity charged per net ton of hot metal tapped and the appropriate units.

Raw Material		Quantity Charged per Ton of Hot Metal Tapped Units	
G	Coke		G pounds G gallons G cubic feet
G	Pulverized coal		G pounds G gallons G cubic feet
G	Natural gas		G pounds G gallons G cubic feet
G	Fuel oil		G pounds G gallons G cubic feet
G	Recycled oils		G pounds G gallons G cubic feet
G	Waste oils		G pounds G gallons G cubic feet
G	Other carbon source (specify):		G pounds G gallons G cubic feet
G	Other carbon source (specify):		G pounds G gallons G cubic feet
G	Limestone		G pounds G gallons G cubic feet
G	Other fluxes (specify):		G pounds G gallons G cubic feet
G	Other fluxes (specify):		G pounds G gallons G cubic feet
G	Moisture - Steam		G pounds G gallons G cubic feet
G	Moisture - Water		G pounds G gallons G cubic feet
G	Oxygen		G pounds G gallons G cubic feet
G	Other (specify):		G pounds G gallons G cubic feet

Сору	of	
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HOW MANY BLAST FURNACE SLAG PITS WERE ON SIT	ITE DURING 1997? A SLAG PIT SEPARATED BY A DIVID	DER IS
COUNTED AS ONE PIT		

Complete a copy of Question 2D-5 for $\underline{\textbf{EACH}}$ slag pit. Number each copy of Question 2D-5 in the space provided in the upper right corner. Note: Question 2D-5 is one page long.

G СВІ	2D-5. a.	Provide the designations of the blast furnace(s) associated with this slag pit. Blast furnace designation should correspond to the response to Question 2D-2.		
G сві	b.	Indicate the location of the slag pit with respect to the blast furnace(s) listed in Question 2D-5.a. G Adjacent G Remote		
G сві	C.	Provide the length, width, and depth of this slag pitfeet longfeet widefeet deep		
G сві	d.	How much slag is processed in this slag pit? tons/year		
G СВІ	e.	Indicate whether any water is used for slag cooling or quenching. G Yes (continue) G No (SKIP to Question 2D-6)		
G СВІ	f.	Indicate the type of water flow in the slag pit. G Open - once-through G Recirculation		
G СВІ	g.	Indicate which type(s) of water are used for slag cooling/quenching or granulated slag operations. Check (🗸) ALL that apply. Also, indicate the volume of each type of water used. This volume is the flow rate of quench water applied to the slag; any discharges from slag quenching should be reported		

	Type of Water	Flow Rate (gallons/month)
G	Plant service water (city, well, or surface water which has not been used elsewhere on site)	
G	Noncontact cooling water (specify manufacturing process(es)):	
G	Treated blast furnace process wastewater	
G	Treated wastewater (specify manufacturing process(es)):	
G	Untreated wastewater (specify manufacturing process(es)):	
G	Treated storm water (specify manufacturing process(es) or other collection area(s)):	
G	Untreated storm water (specify manufacturing process(es) or other collection area(s)):	
G	Other (specify):	
G	Other (specify):	

in Question 2D-8.



HOW MANY **OPERABLE GAS COOLING AND CLEANING SYSTEMS** WERE ON SITE AT THE BLAST FURNACES DURING 1997? A GAS COOLING AND CLEANING SYSTEM MAY INCLUDE MULTIPLE DEVICES SERVING THE SAME PROCESSING UNIT.

COMPLETE A COPY OF QUESTION 2D-6 FOR **EACH** OPERABLE GAS COOLING AND CLEANING SYSTEM. NUMBER EACH COPY OF QUESTION 2D-6 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2D-6 IS THREE PAGES LONG.

		BOX TO THE RIGHT AND SKIP TO QUESTION 2D-7.	NING ASSC	CHAIED WITH ANY BLAST FURNACES ON SITE, CHEC	G
G сві	2D-6. a.	Provide the designation(s) of the blast furnace(s) cooling and cleaning system. Blast furnace design Question 2D-2. If information for this gas cooling this survey, answer Question 2D-6.a., check the base of the survey.	nations and cle	should correspond with response(s) to aning system is already provided elsewher	re in G
G СВI	b.	This gas cooling and cleaning system controls en Check (✓) ALL that apply. G Raw material handling, preparation, and storage G Blast furnace gas cleaning G Blast furnace casting G Storage area fugitive dust emissions	G G G	Pig machine emissions	
G сві	C.	Indicate the devices in this gas cooling and clean G Venturi scrubber G Spray chamber G Evaporation chamber G Separator	G G G		
G сві	d.	Provide the gas or air flow through the system in dscfm	dry stan	ndard cubic feet per minute (dscfm).	

- G CBI e. Is the water recirculated in a system dedicated for this device or applied once-through?
 - **G** Recirculated (continue)
 - **G** Once-through (SKIP to Question 2D-6.I)
- G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop?
 - **G** Yes (continue)
 - G No (SKIP to Question 2D-6.j)
- G CBI g. Does the treatment in the recirculating loop also treat wastewater from other processes?
 - **G** No Dedicated treatment
 - **G** Yes Treatment shared with other processes

Specify the processes:

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COMPLETE A COPY OF QUESTION 2D-6 FOR <u>EACH</u> OPERABLE GAS COOLING AND CLEANING SYSTEM. G CBI 2D-6.h. Check (/) ALL treatment units and/or treatment processes which are included in the recirculating loop. (cont.) **G** Clarifiers **G** Oil skimmers **G** Classifiers **G** Scale pits or scalping tanks **G** Cooling towers **G** Sludge dewatering units (e.g., vacuum filter, pressure filtration, etc.) **G** Earthen Lagoons **G** Water filters (e.g., sand, multimedia, etc.) **G** Lined (specify liner type): **G** Water softeners **G** Clay G Other (specify): **G** Synthetic G Other (specify): G Other (specify): G None **G** Unlined Indicate chemical additions to the water recirculation system. Check (✓) ALL that apply. G CBI i. G Acid **G** Scale inhibitor **G** Surfactant **G** Caustic (sodium hydroxide) G Other (specify): **G** Corrosion inhibitor G Other (specify): **G** Lime **G** Polymer **G** None G CBI j. Provide the design flow of water through the recirculating loop. ______gpm G CBI k. Provide the average recirculation rate of water through the gas cooling and cleaning system and period of operation. hours per day days per year G CBI I. Provide the average rate at which new water is added to the system (for once-through systems, provide the influent flow rate; for recirculating systems, provide the makeup flow rate). ____ gallons per day G CBI m. Indicate **ALL** sources for water addition. Provide the percentage of water contributed by each source. The percentages should add to 100 percent. G Plant service water (city, well, or surface water which has not been used elsewhere on site) **G** Noncontact cooling water (specify manufacturing process(es)): **G** Treated process wastewater (specify manufacturing process(es)): **G** Untreated process wastewater (specify manufacturing process(es)): G Treated storm water (specify manufacturing process(es) or other collection ______% G Untreated storm water (specify manufacturing process(es) or other collection ______% area(s)): _____

G Other (specify):

Total: 100 %

			Copy of
	COMPLETE A COPY OF QUESTION 2	D-6 FOR <u>EACH</u> OPERABLE GAS COOLING AND O	CLEANING SYSTEM.
2D-6.n. (cont.)	Provide the average discharge reprovide the blowdown rate).	ate from the system and period of discharg	ge (for recirculating systems,
	gpm	hours per day	days per year
	OR:	gallons per day	days per year
0.	G Discharge to treatment (speG Discharge without treatment outfall number):	water discharge or blowdown. Check (🗸) a cify treatment system): by pipeline, sewer, or other conveyance to by pipeline, sewer, or other conveyance to n):	o surface water (specify
	designation for permit monit G Zero discharge or alternative G Deep-well injection G Evaporation (specify me) G Percolation pond G Spray irrigation G Disposal by slag cooling G Contract hauled (specify disposal rate, ir (specify destination/disposal G Incineration	by pipeline, sewer, or other conveyance to oring location if applicable): e disposal methods: ethod): g or quenching (specify volume in gallons/oricluding transportation): enosal method):	day): per gallon
p.	Indicate whether gas seals are v G Yes G No	vater flooded.	
q.	G Yes	ater is included in this gas cooling and clea	
r.	G Yes	ter to the gas seals is from this gas cooling	

G CBI 2D-7.a. Are any dry air pollution control (DAPC) systems associated with any blast furnaces on site?

G Yes (continue)

G No (SKIP to Question 2D-8)

G CBI b. Indicate the process(es) associated with DAPC systems and the blast furnace designation(s) associated with each process (designation should correspond with a response to Question 2D-2). Check (✓) ALL that apply. For each process checked, indicate the type of DAPC system.

	Process	Blast Furnace Designation	Type of DAPC System
G	Raw material handling, preparation, and storage		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Blast furnace gas cleaning		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Blast furnace casting		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Storage area fugitive dust emissions		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Pig machine emissions		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Slag handling		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Building evacuation associated with the blast furnace		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):

		of	
	STOP	EXCLUDING GAS COOLING AND CLEANING SYSTEMS AND STORM WATER, HOW MANY OTHER WASTEWATER SOU FROM BLAST FURNACE OPERATIONS ARE PRESENT?	RCES
		Complete a copy of Question 2D-8 for <u>EACH</u> blast furnace wastewater source. Number each cop Question 2D-8 in the space provided in the upper right corner. Note: Question 2D-8 is two pages in the upper right corner.	
		IF YOUR SITE HAS NO BLAST FURNACE SOURCES WHICH CONTRIBUTE PROCESS WASTEWATER NOT ASSOCIATED VIGAS COOLING AND CLEANING SYSTEM OR STORM WATER, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2D-9.	ITH A
	2D-8.	Provide information for the blast furnaces and related on-site wastewater generating sources.	
CBI	a.	Indicate the source of process wastewater NOT associated with gas cooling and cleaning or storm water. If there is more than one source at this site, complete a copy of this question for EACH blast furnace source. G Raw material handling, preparation, and storage G Slag quenching G Blast furnace gas seals G Equipment cleaning and washdown water G Other (specify):	
i CBI	b.	Provide a list of chemicals or pollutants known or believed to be present in this source of process wastewater. If a list is readily available, attach it to the survey with this question number and your written on the upper right corner. If a chemical or pollutant originates from a commercial cleaning solution (e.g., solutions used to clean and wash equipment), provide the vendor name of the clean product and the product code, if known.	J
i CBI		wastewater. If a list is readily available, attach it to the survey with this question number and your written on the upper right corner. If a chemical or pollutant originates from a commercial cleaning solution (e.g., solutions used to clean and wash equipment), provide the vendor name of the clean	ning
		wastewater. If a list is readily available, attach it to the survey with this question number and your written on the upper right corner. If a chemical or pollutant originates from a commercial cleaning solution (e.g., solutions used to clean and wash equipment), provide the vendor name of the clean product and the product code, if known.	ning ve.

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COMPLETE A COPY OF QUESTION 2D-8 FOR <u>EACH</u> BLAST FURNACE OPERATION SOURCE GENERATING PROCESS WASTEWATER NOT ASSOCIATED WITH A GAS COOLING AND CLEANING SYSTEM OR STORM WATER.

G сві	2D-8.d. (cont.)	Indicate the destination of this wastewater stream. Check (✓) <u>ALL</u> that apply. G Discharge to treatment (specify treatment system): G Discharge without treatment by pipeline, sewer, or other conveyance to surface water (specify outfall number):
		G Discharge without treatment by pipeline, sewer, or other conveyance to POTW (specify designation for permit monitoring location):
		G Discharge without treatment by pipeline, sewer, or other conveyance to PrOTW (specify designation for permit monitoring location if applicable):
		G Zero discharge or alternative disposal methods:
		G Deep-well injection
		G Evaporation (specify method):
		G Percolation pond
		G Spray irrigation
		G Disposal by slag cooling or quenching (specify volume in gallons/day):
		G Contract hauled
		(specify disposal rate, including transportation): \$ per gallon (specify destination/disposal method):
		G Incineration
		G Other (specify):

G CBI 2D-9. Provide information on any major process modifications and/or shut downs which have occurred at any of the blast furnaces since 1993. Provide blast furnace designations in the description. Designation(s) should correspond with response(s) to Question 2D-2.

Shut Down or Modification?	Date	Description

G CBI 2D-10. Provide information on any publicly announced process modifications and/or shut downs planned to occur during the next five years (1998 to 2002) at any of the blast furnaces. Provide blast furnace designations in the description. Designation(s) should correspond with response(s) to Question 2D-2.

Shut Down or Modification?	Anticipated Date	Description

Indicate <u>ALL</u> pollution prevention (waste reduction) or management practices implemented by your site for any blast furnaces on site and describe the practice as it is implemented. Describe all processes where by-products and wastes are recovered for reuse or sold as a raw material feedstock. Discuss the percent recovered. Provide the furnace designations in the description. Designation(s) should correspond with response(s) to Question 2D-2.

	Management Practices	Description of Practice
G	Management of spillage and losses from raw material handling operations associated with the blast furnaces	
G	Management of runoff from raw material storage piles associated with the blast furnaces	
G	Management of fugitive discharges of process wastewaters and materials to blast furnace noncontact cooling water (NCCW) systems	
G	Control of blast furnace gas condensates	
G	Surveillance and corrective action programs for oil discharges from large NCCW flows associated with the blast furnaces	
G	Collection and treatment and/or disposal of storm water from any areas associated with the blast furnaces (specify manufacturing processes or other collection areas in the description)	
G	Control of runoff/leachate and ground water contamination from blast furnace slag pits and slag processing areas	
G	Collection and treatment and/or disposal of landfill leachate from any landfills associated with blast furnace wastes	
G	Collection and treatment and/or disposal of contaminated ground waters associated with the blast furnaces	
G	Other (specify):	

- **G CBI 2D-12.**a. Indicate which, if any, of the following materials were charged or injected to any blast furnace during the period January 1993 to December 1997.
 - **G** Cutting oils or other materials containing chlorinated hydrocarbons
 - **G** Oils or other materials containing polychlorinated biphenyl (PCB) compounds
 - **G** Any municipal solid wastes, commercial solid waste, or other material containing plastics or plastic residues
 - **G** None of the above (SKIP to Question 2D-13)
- G CBI b. In the table below, describe the materials specified in Question 2D-12.a. which were charged to the blast furnace, the dates on which these activities occurred, and the purpose of these activities. Indicate blast furnace designations with the purpose. Designations should correspond with responses to Question 2D-2.

Material Description (specify chemical constituents)	Dates Used	Purpose

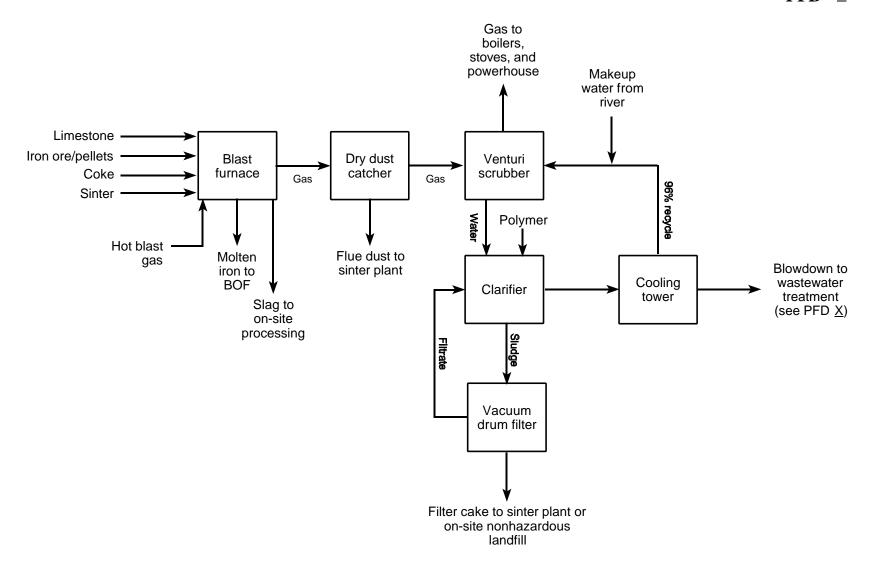
Attach a process flow diagram (PFD) that shows the blast furnace ironmaking process and the water use associated with the process. You are <u>NOT</u> required to create a new PFD if an existing diagram will suffice. Number the diagram in the upper right corner, and include your site ID number (as shown on the cover page of Part A). Specific instructions for including the PFD, along with an example diagram, are provided below. Flow rates are <u>NOT</u> required on the diagrams.

Provide the PFD number(s) assigned to the blast furnace ironmaking PFD. If the process is already shown on a PFD provided elsewhere in this survey, provide the PFD number and review the following list for completeness. If you need assistance, call the Technical Information Help Line at (800) 357-7075.

Dloot	furnaca	ironmo	ادانه م	DED	
Diasi	furnace	IIOIIIIIa	KIIIU	PPD-	

Process Flow Diagram Checklist

Be sure	1
All blast furnace ironmaking operations are included. Include those operations which do not generate process wastewater.	G
All air pollution control systems are included. Label each system as being either wet or dry. Water streams for all wet air pollution control systems must be shown, including all recycle streams and all treatment processes within recycle loops.	G
Any recycle or reuse of process wastewater or other waters is indicated clearly on the diagram.	G
Any in-process wastewater treatment or reuse technologies are indicated. Show and label all treatment units and all recycle loops.	G
Significant losses of water (e.g., evaporation) are shown.	G
All materials entering each operation and all products and wastes exiting each operation are identified. Wastes include wastewater, sludges, baghouse dust, and point-source air emissions. Noncontact cooling water systems which do not contain process wastewater and do not discharge to process wastewater systems do not need to be included.	G
All process wastewater streams are identified. When sources and destinations of process wastewater are not shown on the diagram (i.e., the stream is entering from or exiting to a location not shown on the diagram), describe the source or destination (e.g., "from river" or "to wastewater treatment") and add the PFD number, when appropriate, where the stream's previous or next location can be seen.	G
The PFD number and your site ID number are written on the diagram(s).	G
If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.	G



Blast Furnace Example Process Flow Diagram

COMMENTS FOR SECTION 2D: BLAST FURNACE IRONMAKING

Cross reference your comments by question number and indicate the confidential status of your comment by checking () the box in the column titled "CBI" (Confidential Business Information). If you need additional space, photocopy this page before writing on it and number each copy in the space provided in the upper right corner.

Question Number	СВІ	Comment
	G	- Common
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SECTION 2E. DIRECT-REDUCED IRONMAKING

TECHNICAL INFORMATION HELP LINE: (800) 357-7075



G CBI 2E-1.a.

IS DIRECT-REDUCED IRONMAKING PERFORMED AT THIS SITE?

G YES (CONTINUE)

G No (Skip to Section 2F)

THROUGHOUT THIS SECTION, YOU WILL BE REQUIRED TO PROVIDE INFORMATION FOR <u>ALL</u> OPERABLE UNITS AND WATER SYSTEMS RELATED TO DIRECT-REDUCED IRONMAKING WHICH WERE ON SITE DURING 1997, INCLUDING UNITS AND WATER SYSTEMS WHICH MAY HAVE BEEN IDLE FOR AN EXTENDED PERIOD OF TIME DUE TO CIRCUMSTANCES SUCH AS MARKET CONDITIONS, MAJOR REBUILDS, OR LABOR DISPUTES. IF AN OPERABLE UNIT OR WATER SYSTEM WAS NOT IN OPERATION DURING 1997, SUBSTITUTE THE MOST RECENT CALENDAR YEAR WHEN SUCH CIRCUMSTANCES DID NOT EXIST. NOTE THE YEAR OF OPERATION AND THE CIRCUMSTANCES IN THE COMMENTS AT THE END OF THIS SECTION, AND PROVIDE DATA FROM THAT CALENDAR YEAR.

		tons/year (to three significant figures, e.g., 565,000 tons/year)
G СВІ	b.	What is the annual number of operating hours used to determine the total rated capacity?
		hours/year
G СВІ	2E-2.	Check (✓) ALL raw materials which were charged to the DRI process during 1997.
		G Oxide pellets
		G Lump ores
		G Other (specify):
		G Other (specify):
G СВІ	2E-3.	Provide annual production data for the DRI plant for each of the five calendar years 1993 through 1997.

What is the total rated capacity of the DRI plant in tons per year of direct-reduced iron?

Year	Direct-Reduced Iron Produced (tons/year)
1993	
1994	
1995	
1996	
1997	

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HOW MANY **OPERABLE WET AIR POLLUTION CONTROL (WAPC) SYSTEMS** WERE ON SITE AT THIS DRI PLANT DURING **1997**? A WAPC SYSTEM MAY INCLUDE MULTIPLE DEVICES SERVING THE SAME PROCESSING UNIT.

COMPLETE A COPY OF QUESTION 2E-4 FOR <u>EACH</u> OPERABLE WAPC SYSTEM. NUMBER EACH COPY OF QUESTION 2E-4 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2E-4 IS THREE PAGES LONG.

IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION CONTROL ASSOCIATED WITH THIS DRI PLANT, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2E-5.

	RIGHT AND SKIP TO QUESTION 2E-5.		G
2E-4. a.		where in this survey, answer Question 2E-4.a., check the box to	o G
b.	apply.G Raw material handling, preparationG Gas cooling and/or cleaning	n, and storage	
C.	Indicate the devices in this WAPC system G Venturi scrubber G Spray chamber G Evaporation chamber G Separator	G DemisterG Packed tower	
d.	Provide the gas or air flow through the dscfm	system in dry standard cubic feet per minute (dscfm).	
e.	G Recirculated (continue)	-	
f.	Is any treatment and/or conditioning (e G Yes (continue) G No (SKIP to Question 2E-4.j.)	.g., chemical additions) performed in the recirculating loop?	
g.	G No - Dedicated treatment		
	2E-4. a. b. c. f.	2E-4.a. Provide the designation(s) of all operation WAPC system is already provided elsewithe right, and SKIP to Question 2E-5. b. This WAPC system controls emissions apply. G Raw material handling, preparation G Gas cooling and/or cleaning G Other (specify): c. Indicate the devices in this WAPC systems G Venturi scrubber G Spray chamber G Evaporation chamber G Separator d. Provide the gas or air flow through the second discrimination of G Recirculated (continue) G Once-through (SKIP to Question 2E) G Yes (continue) G No (SKIP to Question 2E-4.j.) g. Does the treatment in the recirculating G No - Dedicated treatment G Yes - Treatment shared with other	2E-4.a. Provide the designation(s) of all operations associated with this WAPC system. If information for this WAPC system is already provided elsewhere in this survey, answer Question 2E-4.a., check the box to the right, and SKIP to Question 2E-5. b. This WAPC system controls emissions from which of the following processes? Check (/) ALL that apply. G. Raw material handling, preparation, and storage G. Gas cooling and/or cleaning G. Other (specify): C. Indicate the devices in this WAPC system. Check (/) ALL that apply. G. Venturi scrubber G. Demister G. Spray chamber G. Packed tower G. Evaporation chamber G. Other (specify): G. Separator G. Other (specify): d. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).

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COMPLETE A COPY OF QUESTION 2E-4 FOR <u>EACH</u> OPERABLE WAPC SYSTEM.

G CBI	2E-4. h.	Check (✓) ALL treatment units and/or treatment	nt process	es which are included in t	the recirculating l	loop.
	(cont.)	G Clarifiers	G	Oil skimmers		
		G Classifiers	G	Scale pits		
		G Cooling towers	G	Sludge dewatering units	(e.g., vacuum fi	lter,
		G Earthen Lagoons		pressure filtration, etc.)		
		G Lined (specify liner type):	G	Water filters (e.g., sand,	multimedia, etc.	.)
		G Clay	G	Water softeners		
		G Synthetic	G	Other (specify):		
		G Other (specify):	G	Other (specify):		
		G Unlined	G	None		
G сві	i.	Indicate chemical additions to the water recircu	ılation syst	em. Check (🗸) ALL that	apply.	
		G Acid	G	Scale inhibitor		
		G Caustic (sodium hydroxide)	G	Surfactant		
		G Corrosion inhibitor	G	Other (specify):		
		G Lime	G	Other (specify):		
		G Polymer	G	None		
G сві	j.	Provide the design flow of water through the re	circulating	loop		gpm
G СВІ	k.	Provide the average recirculation rate of water	through th	e WAPC system and per	iod of operation.	
		•		,	·	
		gpm I	iours per d		days per ye	J ai
G СВІ	I.	Provide the average rate at which new water is the influent flow rate; for recirculating systems,			ugh systems, pro	ovide
		gallons per day			days per ye	ear
G СВІ	m.	Indicate <u>ALL</u> sources for water addition. Provide The percentages should add to 100 percent.	de the perd	centage of water contribu	ted by each sour	ce.
		G Plant service water (city, well, or surface w elsewhere on site)	ater which	has not been used		_ %
		G Noncontact cooling water (specify manufactor)	cturing pro	ocess(es)):		_ %
		G Treated process wastewater (specify many	ufacturing	process(es)):		_ %
		G Untreated process wastewater (specify ma	anufacturin	ng process(es)):		_ %
		G Treated storm water (specify manufacturing area(s)):				_%
		G Untreated storm water (specify manufactual area(s)):	ring proce:	ss(es) or other collection		_%
		G Other (specify):				_ %
					100	

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		COMPLETE A COPY OF QUESTION 2E-4 FOR EACH OPERABLE WAP	C SYSTEM.
G СВІ	2E-4.n. (cont.)	Provide the average discharge rate from the system and period of disch provide the blowdown rate).	narge (for recirculating systems,
		gpm hours per day	days per year
		OR: gallons per day	days per year
G CBI	0.	Indicate the destination of wastewater discharge or blowdown. Check (G. Discharge to treatment (specify treatment system): G. Discharge without treatment by pipeline, sewer, or other conveyance outfall number): G. Discharge without treatment by pipeline, sewer, or other conveyance for permit monitoring location): G. Discharge without treatment by pipeline, sewer, or other conveyance designation for permit monitoring location if applicable): G. Zero discharge or alternative disposal methods: G. Deep-well injection G. Evaporation (specify method): G. Percolation pond G. Spray irrigation G. Contract hauled (specify disposal rate, including transportation): G. Incineration G. Other (specify):	te to surface water (specify te to POTW (specify designation te to PrOTW (specify per gallon

G CBI 2E-5.a. Are any dry air pollution control (DAPC) systems associated with the DRI plant?

G Yes (continue)

G No (SKIP to Question 2E-6)

G CBI b. Indicate the process(es) associated with DAPC systems in the DRI plant. Check (✓) <u>ALL</u> that apply. For each process checked, indicate the type of DAPC system.

Process			Type of DAPC System			
G	Raw material handling, preparation, and storage associated with the DRI plant	G G	Fabric filter (i.e., baghouse) G Other (specify):	E	Electrostatic precipitator	
G	Gas cooling and/or cleaning	G G	Fabric filter (i.e., baghouse) G Other (specify):	E	Electrostatic precipitator	
G	Other (specify):	G G	Fabric filter (i.e., baghouse) G Other (specify):	E	Electrostatic precipitator	
G	Other (specify):	G G	Fabric filter (i.e., baghouse) G Other (specify):	E	Electrostatic precipitator	
G	Other (specify):	G G	Fabric filter (i.e., baghouse) G Other (specify):	E	Electrostatic precipitator	

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	STOP	EXCLUDING WAPC SYSTEMS AND STORM WATER, HOW MANY OTHER WASTEWATER SOURCES FROM DOPERATIONS ARE PRESENT?	RI PLANT
		COMPLETE A COPY OF QUESTION 2E-6 FOR EACH DRI PLANT WASTEWATER SOURCE. NUMBER EACH CO QUESTION 2E-6 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2E-6 IS TWO P	
		IF YOUR SITE HAS NO DRI PLANT SOURCES WHICH CONTRIBUTE PROCESS WASTEWATER NOT ASSOCIATED WAPC SYSTEM OR STORM WATER, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2E-7.	WITH A
	2E-6.	Provide information for the DRI plant and related on-site wastewater generating sources.	
6 СВІ	a.	Indicate the source of process wastewater not associated with wet air pollution control or stoll there is more than one source at this site, complete a copy of this question for EACH DRI source. G Raw material handling, preparation, and storage G Equipment cleaning and washdown water G Other (specify):	
СВІ	h	Provide a list of chemicals or pollutants known or believed to be present in this source of pro-	2200
		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial cle solution (e.g., solutions used to clean and wash equipment), provide the vendor name of the product and the product code, if known.	your site ID eaning
		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial clessolution (e.g., solutions used to clean and wash equipment), provide the vendor name of the	your site ID eaning
		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial clessolution (e.g., solutions used to clean and wash equipment), provide the vendor name of the	your site ID eaning
		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial clessolution (e.g., solutions used to clean and wash equipment), provide the vendor name of the	your site ID eaning
		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial clessolution (e.g., solutions used to clean and wash equipment), provide the vendor name of the	your site ID eaning
		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial clessolution (e.g., solutions used to clean and wash equipment), provide the vendor name of the	your site ID eaning
6 СВІ		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial clessolution (e.g., solutions used to clean and wash equipment), provide the vendor name of the	your site ID eaning e cleaning
Э СВІ		wastewater. If a list is readily available, attach it to the survey with this question number and written on the upper right corner. If a chemical or pollutant originates from a commercial cle solution (e.g., solutions used to clean and wash equipment), provide the vendor name of the product and the product code, if known. Provide the wastewater flow rate and period of discharge associated with the source checkers.	your site ID eaning e cleaning

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		Complete a copy of Question 2E-6 for <u>EACH</u> direct-reduced ironmaking source generating process wastewater not associated with a WAPC system or storm water.	
G сві	2E-6. d.	Indicate the destination of this wastewater stream. Check (✓) <u>ALL</u> that apply.	
	(cont.)	G Discharge to treatment (specify treatment system):	
		G Discharge without treatment by pipeline, sewer, or other conveyance to surface water (specify outfall number):	
		G Discharge without treatment by pipeline, sewer, or other conveyance to POTW (specify designation for permit monitoring location):	ion
		G Discharge without treatment by pipeline, sewer, or other conveyance to PrOTW (specify designation for permit monitoring location if applicable):	
		G Zero discharge or alternative disposal methods:	
		G Deep-well injection	
		G Evaporation (specify method):	
		G Percolation pond	
		G Spray irrigation	
		G Contract haul	
		(specify disposal rate, including transportation): \$ per gallon (specify destination/disposal method):	

G Other (specify):

G Incineration

G CBI 2E-7. Provide information on any major process modifications and/or shut downs which have occurred for this DRI plant since 1993.

Shut Down or Modification?	Date	Description

G CBI 2E-8. Provide information on any publicly announced process modifications and/or shut downs planned to occur during the next five years (1998 to 2002) at the DRI plant.

Shut Down or Modification?	Anticipated Date	Description

Indicate <u>ALL</u> pollution prevention (waste reduction) or management practices implemented by your site for the DRI plant and describe the practice as it is implemented. Describe all processes where byproducts and wastes are recovered for reuse or sold as a raw material feedstock. Discuss the percent recovered.

	Management Practices	Description of Practice
G	Management of spillage and losses from raw material handling operations associated with the DRI plant	
G	Management of runoff from raw material or product storage piles associated with the DRI plant	
G	Management of fugitive discharges of process wastewaters and materials to DRI plant noncontact cooling water (NCCW) systems	
G	Surveillance and corrective action programs for oil discharges from large NCCW flows associated with the DRI plant	
G	Collection and treatment and/or disposal of storm water from any areas associated with the DRI plant (specify manufacturing processes or other collection areas in the description)	
G	Collection and treatment and/or disposal of landfill leachate from any landfills associated with DRI plant wastes	
G	Collection and treatment and/or disposal of contaminated ground waters associated with the DRI plant	
G	Other (specify):	
G	Other (specify):	
G	Other (specify):	

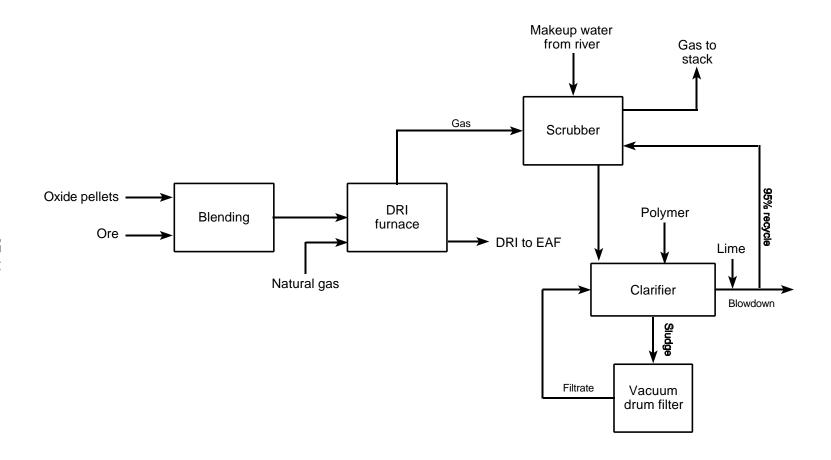
Attach a process flow diagram (PFD) that shows the DRI process and the water use associated with the process. You are <u>NOT</u> required to create a new PFD if an existing diagram will suffice. Number the diagram in the upper right corner, and include your site ID number (as shown on the cover page of Part A). Specific instructions for including the PFD, along with an example diagram, are provided below. Flow rates are <u>NOT</u> required on the diagrams.

Provide the PFD number assigned to the DRI plant PFD. If the process is already shown on a PFD provided elsewhere in this survey, provide the PFD number and review the following list for completeness. If you need assistance, call the Technical Information Help Line at (800) 357-7075.

DRI plant PFD	
---------------	--

Process Flow Diagram Checklist

Be sure	1
All direct-reduced ironmaking operations are included. Include those operations which do not generate process wastewater.	G
All air pollution control systems are included. Label each system as being either wet or dry. Water streams for all wet air pollution control systems must be shown, including all recycle streams and all treatment processes within recycle loops.	G
Any recycle or reuse of process wastewater or other waters is indicated clearly on the diagram.	G
Any in-process wastewater treatment or reuse technologies are indicated. Show and label all treatment units and all recycle loops.	G
Significant losses of water (e.g., evaporation) are shown.	G
All materials entering each operation and all products and wastes exiting each operation are identified. Wastes include wastewater, sludges, baghouse dust, and point-source air emissions. Noncontact cooling water systems which do not contain process wastewater and do not discharge to process wastewater systems do not need to be included.	G
All process wastewater streams are identified. When sources and destinations of process wastewater are not shown on the diagram (i.e., the stream is entering from or exiting to a location not shown on the diagram), describe the source or destination (e.g., "from river" or "to wastewater treatment") and add the PFD number, when appropriate, where the stream's previous or next location can be seen.	G
The PFD number and your site ID are written on the diagram.	G
If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.	G



DRI = Direct-Reduced Iron EAF= Electric Arc Furnace

COMMENTS FOR SECTION 2E: DIRECT-REDUCED IRONMAKING

Cross reference your comments by question number and indicate the confidential status of your comment by checking () the box in the column titled "CBI" (Confidential Business Information). If you need additional space, photocopy this page before writing on it and number each copy in the space provided in the upper right corner.

Question Number	СВІ	Comment
	G	- Common
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	G	

SECTION 2F. BASIC OXYGEN FURNACE STEELMAKING

TECHNICAL INFORMATION HELP LINE: (800) 357-7075



IS BASIC OXYGEN FURNACE (BOF) STEELMAKING PERFORMED AT THIS SITE?

G YES (CONTINUE)

G No (Skip to Section 2G)

THROUGHOUT THIS SECTION, YOU WILL BE REQUIRED TO PROVIDE INFORMATION FOR <u>ALL</u> OPERABLE UNITS AND WATER SYSTEMS RELATED TO BOF STEELMAKING WHICH WERE ON SITE DURING 1997, INCLUDING UNITS AND WATER SYSTEMS WHICH MAY HAVE BEEN IDLE FOR AN EXTENDED PERIOD OF TIME DUE TO CIRCUMSTANCES SUCH AS MARKET CONDITIONS, MAJOR REBUILDS, OR LABOR DISPUTES. IF AN OPERABLE UNIT OR WATER SYSTEM WAS NOT IN OPERATION DURING 1997, SUBSTITUTE THE MOST RECENT CALENDAR YEAR WHEN SUCH CIRCUMSTANCES DID NOT EXIST. NOTE THE YEAR OF OPERATION AND THE CIRCUMSTANCES IN THE COMMENTS AT THE END OF THIS SECTION, AND PROVIDE DATA FROM THAT CALENDAR YEAR.

G сві	2F-1.	How many operable BOFs were on site during 1997?
G СВI	2F-2.	A BOF shop consists of a building or structure containing one or more BOFs and ancillary processes and equipment (e.g., hot metal desulfurization; hot metal charging; scrap charging; oxygen and flux addition; furnace tapping; ladle preparation; deslagging and slag handling; and primary and secondary air emission control equipment). This definition of a BOF shop is used for this survey. In the top row of the table below, provide a list of the operable BOF shops that were on site during 1997. Use the site terminology or site designation for each BOF shop. Fill in each column with the site designation for each furnace at each shop.

BOF Shop Designation:		
Individual Furnace		
Designations:		

		Section Copy of
	STOP	HOW MANY OPERABLE BOF SHOPS WERE ON SITE DURING 1997 ?
	OTO	COMPLETE A COPY OF THE REMAINDER OF THIS SECTION (QUESTIONS 2F-3 THROUGH 2F-17 AND A COMMENTS PAGE IF NECESSARY) FOR EACH OPERABLE BOF SHOP. NUMBER EACH COPY OF QUESTIONS 2F-3 THROUGH 2F-17 IN THE SPACE PROVIDED AT THE TOP OF EACH PAGE.
G сві	2F-3.	Provide the designation of this BOF shop. The BOF shop designation should correspond with a response to Question 2F-2.
G сві	2F-4.	What year was steel first produced at this BOF shop?
G сві	2F-5. a.	What is the total rated capacity of raw steel for this shop in tons per year?
		tons/year (to three significant figures, e.g., 995,000 tons/year)
G СВІ	b.	What is the annual number of heats used to determine the total rated capacity?
		heats/year
G сві	2F-6.	Provide annual production data for this BOF shop for each of the five calendar years 1993 through 1997.

Year	BOF Steel Produced (tons/year)
1993	
1994	
1995	
1996	
1997	

Section Copy of	
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G СВІ	2F-7.	Check () <u>ALL</u> raw materials and alloying elements which were charged to the BOFs in this shop in 1997. If you have a previously prepared list of raw materials and alloying elements charged to the BOFs in this shop, attach it to the survey, write your site ID (shown on the cover page of Part A) and question number on the upper right corner of the list, check () the box to the right, and SKIP to	
		Question 2F-8.	G

3	Molten iron	G	Other (specify):
3	Steel scrap	G	Other (specify):
3	Iron pigs	G	Other (specify):
3	Iron ore	G	Other (specify):
3	Direct-reduced iron	G	Other (specify):
3	Beach iron/scrap	G	Other (specify):
3	Burnt lime	G	Other (specify):
3	Dolomitic lime	G	Other (specify):
3	High iron briquettes	G	Other (specify):
3	Carbon	G	Other (specify):
3	Fluorspar	G	Other (specify):
3	Aluminum	G	Other (specify):
3	Boron	G	Other (specify):
3	Chromium	G	Other (specify):
3	Cobalt	G	Other (specify):
3	Copper	G	Other (specify):
3	Lead	G	Other (specify):
3	Magnesium	G	Other (specify):
3	Manganese	G	Other (specify):
3	Molybdenum	G	Other (specify):
3	Nickel	G	Other (specify):
3	Niobium (Columbium)	G	Other (specify):
3	Selenium	G	Other (specify):
3	Silicon	G	Other (specify):
3	Sulfur	G	Other (specify):
3	Tantalum	G	Other (specify):
3	Titanium	G	Other (specify):
3	Tungsten	G	Other (specify):
3	Vanadium	G	Other (specify):
3	Zirconium	G	Other (specify):

		Section Copy of	Сору	of
	STOP	HOW MANY <u>OPERABLE BOFS IN THIS SHOP</u> WERE ON SITE DURING 1997? COMPLETE A COPY OF QUESTION 2F-8 FOR <u>EACH</u> OPERABLE BOF IN THIS SHOP. NUMB 2F-8 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2F-8 IS O	ER EACH COPY C	OF QUESTION
G сві	2F-8. a.	Provide the site designation for this BOF. The BOF designation should corres Question 2F-2.	pond with a re	esponse to
G сві	b.	What is the typical heat size of this furnace in tons?	t	ons per hea
G СВІ	C.	What is the typical tap-to-tap time? minutes		
G сві	d.	What type of gas cleaning system is on this furnace?		
		Semi-Wet. Furnace off-gases are conditioned with moisture prior to processir precipitators or bag houses.	ng in electrost	atic
		Wet-Open Combustion. Excess air is admitted to the off-gas collection systemonoxide to combust prior to high-energy wet scrubbing for air pollution control.		arbon
		Wet-Suppressed Combustion. Admission of excess air to the off-gas collect energy wet scrubbing for air pollution control is limited, thus minimizing combutand the volume of gas requiring subsequent treatment.		
		G Semi-wet with electrostatic precipitator or baghouse		
		G Wet-open combustion		
		G Wet-suppressed combustion		
		G Other (specify):		

		Section Cop	y	of	Сору	of
	STOP	HOW MANY OPERABLE WET AIR POLLUTION CONTR SHOP DURING 1997 ? A WAPC SYSTEM MAY INCLUDE MULTIN				
		COMPLETE A COPY OF QUESTION 2F-9 FOR EACH OPERABL 9 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NO COMPLETE THESE QUESTIONS FOR SEMI-WET AIR POLLUTION (re: Qu	JESTION 2F-9 IS THE		
		IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION CONTROL AT TO THE RIGHT AND SKIP TO QUESTION 2F-10.	SSOCI	ATED WITH ANY BO	FS IN THIS SHOP, C	СНЕСК ТНЕ ВОХ G
G СВI	2F-9. a.	Provide the designation(s) of the BOF(s) and all other of BOF designation(s) should correspond with response(s system is already provided elsewhere in this survey, arright, and SKIP to Question 2F-10.) to C	Question 2F-2. If	f information for	r this WAPC
G СВІ	b.	This WAPC system controls emissions from which of the	ne foll	owing processe	s? Check (🗸) <u>/</u>	ALL that
		 apply. G Raw material handling, preparation, and storage G Gas cleaning for primary furnace emissions G Secondary furnace emission controls 	G G	Desulfurizatio Building evacu Other (specify Other (specify	uation /):	
G сві	C.	G Spray chamberG Evaporation chamber	G Pa G O	nat apply. emister acked tower ther <i>(specify)</i> : _ ther <i>(specify)</i> : _		
G СВІ	d.	Provide the gas or air flow through the system in dry st	andaı	d cubic feet per	minute (dscfm)	
G сві	e.	Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2F-9.I.)				
G СВІ	f.	Is any treatment and/or conditioning (e.g., chemical ad the furnaces? G Yes (continue) G No (SKIP to Question 2F-9.j.)	dition	s) performed in t	the recirculating	រុ loops at
G сві	g.	Does the treatment in the recirculating loops also treat G No - Dedicated treatment G Yes - Treatment shared with other processes	waste	ewater from othe	er processes?	
		Specify the processes:				

			Section Copy	of	Сору	of
		COMPLETE A COPY OF QUESTION	ON 2F-9 FOR EACH	OPERABLE WAPC S	YSTEM.	
3 сві	2F-9.h. (cont.)	Check (✓) <u>ALL</u> treatment units and/or loops.	r treatment process	es which are inclu	ded in the recirc	culating
	, ,	G Clarifiers	G	Oil skimmers		
		G Classifiers	G	Scale pits		
		G Cooling towers	G	Sludge dewaterir	ng units (e.g., va	cuum filter,
		G Earthen Lagoons		pressure filtration		
		G Lined (specify liner type):	G	Water filters (e.g.	., sand, multime	dia, etc.)
		G Clay	G	Water softeners		
		G Synthetic	G	Other (specify):		
		G Other (specify):	G	Other (specify):		
		G Unlined		None		
G СВІ	i.	Indicate chemical additions to the wat	er recirculation syst	em. Check (✔) Al	LL that apply.	
		G Acid	•	Scale inhibitor	<u> </u>	
		G Caustic (sodium hydroxide)		Surfactant		
		G Corrosion inhibitor		Other (specify):		
		G Lime		Other (specify):		
		G Polymer	G	None		
Э СВІ	j.	Provide the design flow of water throu	gh the recirculating	loop.		gpm
З СВІ	k.	Provide the average recirculation rate	of water through th	e WAPC system a	and period of op	eration.
		gpm	hours per d	day	day	ys per year
Э СВІ	I.	Provide the average rate at which new the influent flow rate; for recirculating				ems, provide
		gallons	per day		day	ys per year

			Section Copy	of	Copy of
		COMPLETE A COPY OF Q	UESTION 2F-9 FOR EACH OPER	RABLE WAPC SYSTEM.	
G СВІ	2F-9.m. (cont.)	Indicate <u>ALL</u> sources for water a		age of water contribu	uted by each source.
		G Plant service water (city, we elsewhere on site)	ll, or surface water which has	s not been used	%
		G Noncontact cooling water (s	pecify manufacturing proces	s(es)):	%
		G Treated process wastewater	(specify manufacturing prod	cess(es)):	%
		G Untreated process wastewar	ter (specify manufacturing pr	rocess(es)):	%
		G Treated storm water (specify area(s)):			%
		G Untreated storm water (specarea(s)):			<u> </u>
		G Other (specify):			%
				Total	100 %
G СВІ	n.	Provide the average discharge raprovide the blowdown rate).	ate from the system and peri	od of discharge (for ı	recirculating systems,
		anm	hours per day		days ner vear
			hours per day		days per year
		gpm OR:	hours per day gallons per day		days per year
G СВІ	0.	OR: Indicate the destination of waste	gallons per day	y n. Check (✔) <u>ALL</u> tha	days per year at apply.
G сві	0.	OR: Indicate the destination of waste G Discharge to treatment (spe	gallons per day water discharge or blowdowr cify treatment system):	y n. Check (✔) <u>ALL</u> tha	days per year at apply.
G сві	0.	OR: Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment	gallons per day water discharge or blowdowr cify treatment system): by pipeline, sewer, or other	y n. Check (✔) <u>ALL</u> that conveyance to surfac	days per year at apply.
G сві	0.	OR: Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other	y n. Check (✔) <u>ALL</u> that conveyance to surfac	days per year at apply.
G сві	0.	OR: Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	OR: Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable):	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	OR: Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monit G Zero discharge or alternative G Deep-well injection	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable): e disposal methods:	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monits G Zero discharge or alternative G Deep-well injection G Evaporation (specify me	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable): e disposal methods:	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monit G Zero discharge or alternative G Deep-well injection G Evaporation (specify med G Percolation pond	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable): e disposal methods:	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monit G Zero discharge or alternative G Deep-well injection G Evaporation (specify me G Percolation pond G Spray irrigation	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable): e disposal methods:	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monits G Zero discharge or alternative G Deep-well injection G Evaporation (specify medication) G Spray irrigation G Contract hauled (specify disposal rate, in	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable): e disposal methods:	n. Check () ALL that conveyance to surface conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify
G сві	0.	Indicate the destination of waste G Discharge to treatment (spe G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monits G Zero discharge or alternative G Deep-well injection G Evaporation (specify medication) G Spray irrigation G Contract hauled (specify disposal rate, in	gallons per day water discharge or blowdown cify treatment system): by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other oring location if applicable): e disposal methods: actuding transportation): \$ bosal method):	n. Check (🗸) ALL that conveyance to surfact conveyance to POTV conveyance to PrOT	days per year at apply. ce water (specify N (specify designation W (specify

COMPLETE A COPY OF QUESTION 2F-10 FOR EACH OPERABLE SWAPC SYSTEM. NUMBER EACH COPY OF QUESTION 2F-10 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2F-10 IS THREE PAGES LONG. IF YOUR SITE DOES NOT HAVE SEMI-WET AIR POLLUTION CONTROL ASSOCIATED WITH ANY BOFS IN THIS SHOP, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2F-11. G CBI 2F-10.a. Provide the designation(s) of the BOF(s) associated with this SWAPC system. BOF designation(s) should correspond with response(s) to Question 2F-2. G CBI b. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).			Section Copy of Copy of
2F-10 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2F-10 IS THREE PAGES LONG. IF YOUR SITE DOES NOT HAVE SEMI-WET AIR POLLUTION CONTROL ASSOCIATED WITH ANY BOFS IN THIS SHOP, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2F-11. G CBI 2F-10.a. Provide the designation(s) of the BOF(s) associated with this SWAPC system. BOF designation(s) should correspond with response(s) to Question 2F-2. G CBI b. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).		STOP	(SWAPC) SYSTEMS WERE ON SITE AT THIS BOF SHOP DURING 1997? A SWAPC SYSTEM MAY INCLUDE MULTIPLE
G CBI 2F-10.a. Provide the designation(s) of the BOF(s) associated with this SWAPC system. BOF designation(s) should correspond with response(s) to Question 2F-2. G CBI b. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).			COMPLETE A COPY OF QUESTION 2F-10 FOR EACH OPERABLE SWAPC SYSTEM. NUMBER EACH COPY OF QUESTION 2F-10 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2F-10 IS THREE PAGES LONG.
Should correspond with response(s) to Question 2F-2. G CBI D. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm) dscfm			IF YOUR SITE DOES NOT HAVE SEMI-WET AIR POLLUTION CONTROL ASSOCIATED WITH ANY BOFS IN THIS SHOP, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2F-11.
dscfm G CBI c. How much water is applied to the gas stream for conditioning upstream of the air pollution control device?gallons per ton of steel produced G CBI d. Is an excess of water applied (i.e., more water is applied than can be absorbed by the gas stream)? G Yes G No G CBI e. Indicate why water is applied to the gas stream. G To flush solids upstream of the air pollution control devices G Other (specify):	G сві	2F-10. a.	
G CBI C. How much water is applied to the gas stream for conditioning upstream of the air pollution control device?	G сві	b.	
G CBI d. Is an excess of water applied (i.e., more water is applied than can be absorbed by the gas stream)? G Yes G No G CBI e. Indicate why water is applied to the gas stream. G To flush solids upstream of the air pollution control devices G Other (specify): G CBI f. Is the system operated in a zero-discharge mode on a sustained basis (i.e., no water is discharged from this system)? G Yes G No G CBI g. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2F-10.n.) G CBI h. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop? G Yes (continue)	G СВІ	C.	How much water is applied to the gas stream for conditioning upstream of the air pollution control
G Yes G No G CBI e. Indicate why water is applied to the gas stream. G To flush solids upstream of the air pollution control devices G Other (specify): G CBI f. Is the system operated in a zero-discharge mode on a sustained basis (i.e., no water is discharged from this system)? G Yes G No G CBI g. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2F-10.n.) G CBI h. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop? G Yes (continue)			gallons per ton of steel produced
G To flush solids upstream of the air pollution control devices G Other (specify): G CBI f. Is the system operated in a zero-discharge mode on a sustained basis (i.e., no water is discharged from this system)? G Yes G No G CBI g. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2F-10.n.) G CBI h. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop? G Yes (continue)	G СВІ	d.	G Yes
this system)? G Yes G No G Sel g. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2F-10.n.) G CBI h. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop? G Yes (continue)	G сві	e.	G To flush solids upstream of the air pollution control devices
G Recirculated (continue) G Once-through (SKIP to Question 2F-10.n.) G CBI h. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop? G Yes (continue)	G сві	f.	G Yes
G Yes (continue)	G СВI	g.	G Recirculated (continue)
	G сві	h.	G Yes (continue)

			Section Copy _	of	Сору	of
		COMPLETE A COPY OF QUESTION	12F-10 FOR <u>EACH</u> (PERABLE SWAPC	SYSTEM.	
G сві	2F-10.i. (cont.)	Does the treatment in the recirculating G No - Dedicated treatment G Yes - Treatment shared with other	•	stewater from othe	er processes?	
		Specify the processes:				
G сві	j.	Check (✓) ALL treatment units and/or G Clarifiers G Classifiers G Cooling towers G Earthen Lagoons G Lined (specify liner type): G Clay G Synthetic G Other (specify):	G G G G	oil skimmers Scale pits Sludge dewaterir pressure filtration Water filters (e.g. Water softeners Other (specify): None	ng units (e.g., va n, etc.) ., sand, multime	cuum filter, dia, etc.)
G сві	k.	G Unlined Indicate chemical additions to the wate G Acid G Caustic (sodium hydroxide) G Corrosion inhibitor G Lime G Polymer	er recirculation syst G G G			
G сві	l.	Provide the design flow of water throu	gh the recirculating	loop		gpm
G СВІ	m.	Provide the average recirculation rate gpm	of water through th	•	and period of ope	
G СВІ	n.	Provide the average rate at which new the influent flow rate; for recirculating				ems, provide
		gallons ¡	per day		day	/s per year

			Section Copy	of	Сору	_ of
		COMPLETE A COPY OF QUEST	ION 2F-10 FOR <u>EACH</u> OPE	RABLE SWAPC SYSTE	М.	
G сві	2F-10.o. (cont.)	Indicate <u>ALL</u> sources for water add The percentages should add to 100	•	stage of water contribu	uted by eacl	n source.
		G Plant service water (city, well, coelsewhere on site)	r surface water which ha	is not been used		%
		G Noncontact cooling water (spec	cify manufacturing proce	ss(es)):		%
		G Treated process wastewater (s	pecify manufacturing pro	ocess(es)):		%
		G Untreated process wastewater	(specify manufacturing p	process(es)):		%
		G Treated storm water (specify marea(s)):			- 	%
		G Untreated storm water (specify area(s)):			1	%
		G Other (specify):				%
					- II <u>100</u>	
	•	Provide the average discharge rate provide the blowdown rate) gpm	hours per day		days	•
					•	
G сві		OR:	gallons per da		days	per year
G сві	q.	OR: Indicate the destination of wastewa G Discharge to treatment (specify	ter discharge or blowdow	ay ⁄n. Check (✔) <u>ALL</u> th	at apply.	
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by	ter discharge or blowdow v treatment system):	yn. Check (✔) <u>ALL</u> th	at apply.	
G СВІ	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by	ter discharge or blowdow **treatment system): pipeline, sewer, or other	n. Check (✔) <u>ALL</u> th conveyance to surfa	at apply.	pecify
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by	ter discharge or blowdow treatment system): pipeline, sewer, or other pipeline, sewer, or other pipeline, sewer, or other	r. Check () ALL the conveyance to surfactor conveyance to POT	at apply. ce water (sp W (specify common specify common specify specify)	pecify designatio
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location):	ter discharge or blowdow v treatment system): pipeline, sewer, or other pipeline, sewer, or other pipeline, sewer, or other pipeline, sewer, or other ag location if applicable):	r. Check () ALL the conveyance to surfactor conveyance to POT	at apply. ce water (sp W (specify common specify common specify specify)	pecify designatio
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative di G Deep-well injection	ter discharge or blowdow treatment system): pipeline, sewer, or other pipeline, sewer, or o	rn. Check (🗸) ALL the conveyance to surfactor conveyance to POT	at apply. ce water (sp W (specify of	pecify designatio
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative di G Deep-well injection G Evaporation (specify metho	ter discharge or blowdow treatment system): pipeline, sewer, or other pipeline, sewer, or o	rn. Check (🗸) ALL the conveyance to surfactor conveyance to POT	at apply. ce water (sp W (specify of	pecify designatio
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative di G Deep-well injection G Evaporation (specify methol G Percolation pond	ter discharge or blowdow treatment system): pipeline, sewer, or other pipeline, sewer, or o	rn. Check (🗸) ALL the conveyance to surfactor conveyance to POT	at apply. ce water (sp W (specify of	pecify designatio
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative di G Deep-well injection G Evaporation (specify methol G Percolation pond G Spray irrigation	ter discharge or blowdow treatment system): pipeline, sewer, or other pipeline, sewer, or o	rn. Check () ALL the conveyance to surfactor conveyance to POT	at apply. ce water (sp W (specify of	pecify designatio
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative di G Deep-well injection G Evaporation (specify methol G Percolation pond	ter discharge or blowdow of treatment system): pipeline, sewer, or other ng location if applicable): sposal methods:	rn. Check () ALL the conveyance to surfactor conveyance to POT conveyance to PrOT	at apply. ce water (sp W (specify co W (specify) er gallon	pecify
G сві	q.	Indicate the destination of wastewa G Discharge to treatment (specify G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative di G Deep-well injection G Evaporation (specify metho G Percolation pond G Spray irrigation G Contract hauled (specify disposal rate, include)	ter discharge or blowdow treatment system): pipeline, sewer, or other pipeline, sewer, or o	m. Check (✓) ALL the conveyance to surfact conveyance to POT	at apply. ce water (sp W (specify of W (specify) er gallon	pecify

G CBI 2F-11.a. Are any dry air pollution control (DAPC) systems associated with any BOFs in this shop?

G Yes (continue)

G No (SKIP to Question 2F-12)

G CBI b. Indicate the process associated with DAPC systems in the BOF shop and the furnace designation(s) associated with each process (designation(s) should correspond with response(s) to Question 2F-2). Check (✓) <u>ALL</u> that apply. For each process checked, indicate the type of DAPC system.

	Process	BOF Designation	Type of DAPC System
G	Raw material handling, preparation, and storage associated with the BOFs		 G Fabric filter (i.e., baghouse) G Other (specify):
G	Gas cleaning for primary furnace emissions		 G Fabric filter (i.e., baghouse) G Other (specify):
G	Secondary furnace emissions controls		 G Fabric filter (i.e., baghouse) G Other (specify):
G	Desulfurization		 G Fabric filter (i.e., baghouse) G Other (specify):
G	Slag handling		 G Fabric filter (i.e., baghouse) G Other (specify):
G	Building evacuation		 G Fabric filter (i.e., baghouse) G Other (specify):
G	Other (specify):		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):

		Section Copy of
G сві	2F-12. a.	Is any water used for quenching or cooling of slag produced at this BOF shop? G Yes (continue) G No (SKIP to Question 2F-13)
G СВI	b.	Indicate the location of BOF slag quenching operations. Check (✓) <u>ALL</u> that apply. G At or near the BOF shop G Remotely located from the BOF shop G Both
G СВІ	C.	What is the typical average monthly volume of water used for slag quenching or cooling? Provide a best engineering estimate if an actual value is not available.
		gallons per month
G сві	d.	What was the typical average monthly amount of BOF slag produced in 1997 ? Provide a best engineering estimate if an actual value is not available.
		tons per month
G сві	e.	Indicate <u>ALL</u> sources of water used for slag quenching or cooling. G Plant service water (city, well, or surface water which has not been used elsewhere on site)
		G Noncontact cooling water (specify manufacturing process(es)):
		G Treated process wastewater (specify manufacturing process(es)):
		G Untreated process wastewater (specify manufacturing process(es)):
		G Treated storm water (specify manufacturing process(es) or other collection area(s)):
		G Untreated storm water (specify manufacturing process(es) or other collection area(s)):
		G Other (specify):

			Section (Сору	_ of	Сору	of
	STOP	EXCLUDING AIR POLLUTION OTHER WASTEWATER SOURCE					OW MANY
		COMPLETE A COPY OF QUEST 2F-13 IN THE SPACE PROVIDE					
		IF YOUR SITE HAS NO BOF SO POLLUTION CONTROL, VACUU QUESTION 2F-14.					
	2F-13.	Provide information for this E	BOF shop and related o	n-site wast	tewater gene	erating sources.	
G СВI	a.	Indicate the source of procest vacuum degassers, casters, copy of this question for EAC G Raw material preparation G Slag quenching G Equipment cleaning and G Other (specify):	or storm water. If ther BOF source. n and storage	e is more tl			
G СВI	b.	Provide a list of chemicals o wastewater. If a list is readily written on the upper right co solution (e.g., solutions used product and product code, if	y available, attach it to rner. If a chemical or p I to clean and wash eq	the survey vollutant ori	with this que ginates from	estion number and na commercial cle	your site ID eaning
G сві	C.	Provide the wastewater flow	•	Ū	ciated with t		
		gpm	hour	s per day		day:	s per year
		OR:	gallo	ns per day		day:	s per year

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			ETE A COPY OF QUESTION 2F-13 FER NOT ASSOCIATED WITH AIR P	· · · · · · · · · · · · · · · · · · ·				
G сві	2F-13.d. (cont.)	_	icate the destination of this war					
		G	Discharge without treatment outfall number):		conveyan	ce to surface water (specify		
		G	,	by pipeline, sewer, or other	conveyan	ce to POTW (specify designation		
	G Discharge without treatment by pipeline, sewer, or oth designation for permit monitoring location if applicable							
		G	Zero discharge or alternative G Deep-well injection G Evaporation (specify me G Percolation pond G Spray irrigation	e disposal methods:				
			G Contract hauled (specify disposal rate, in	ncluding transportation): \$ _ nosal method):				
			G Incineration	f. -				

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G CBI **2F-14.** Provide information on any major process modifications and/or shut downs which have occurred at this BOF shop since 1993. Provide BOF shop and furnace designations in the description. Designation(s) should correspond with response(s) to Question 2F-2.

Shut Down or Modification?	Date	Description

G CBI 2F-15. Provide information on any publicly announced process modifications and/or shut downs planned to occur during the next five years (1998 to 2002) at this BOF shop. Provide BOF shop and furnace designations in the description. Designation(s) should correspond with response(s) to Question 2F-2.

Shut Down or Modification?	Anticipated Date	Description

G CBI 2F-16.

Indicate <u>ALL</u> pollution prevention (waste reduction) or management practices implemented by your site for this BOF shop and describe the practice as it is implemented. Describe all processes where byproducts and wastes are recovered for reuse or sold as a raw material feedstock. Discuss the percent recovered. Provide BOF shop and furnace designations in the description. Designation(s) should correspond with response(s) to Question 2F-2.

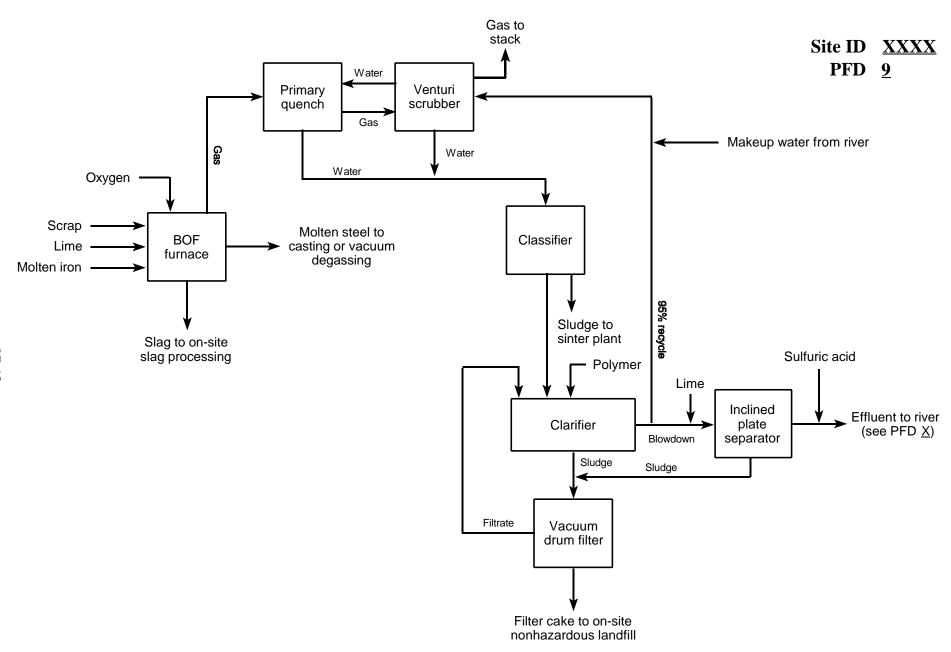
	Management Practices	Description of Practice
G	Management of spillage and losses from raw material handling operations associated with this BOF shop	
G	Management of runoff from raw material storage piles associated with this BOF shop	
G	Management of fugitive discharges of process wastewaters and materials to BOF shop noncontact cooling water (NCCW) systems	
G	Surveillance and corrective action programs for oil discharges from large NCCW flows associated with this BOF shop	
G	Collection and treatment and/or disposal of storm water from any areas associated with the BOFs (specify manufacturing processes or other collection areas in the description)	
G	Control of runoff/leachate and ground water contamination from BOF slag processing adjacent at the furnaces	
G	Control of runoff from BOF slag processing remote from the furnace	
G	Collection and treatment and/or disposal of landfill leachate from any landfills associated with BOF shop wastes	
G	Collection and treatment and/or disposal of contaminated ground waters associated with this BOF shop	
G	Other (specify):	
G	Other (specify):	

		Section Copy of
G сві	2F-17.	Attach a process flow diagram (PFD) that shows the BOF steelmaking process and the water use associated with the process. You are <u>NOT</u> required to create a new PFD if an existing diagram will suffice. Number the diagram in the upper right corner, and include your site ID number (as shown on the cover page of Part A). Specific instructions for including the PFD, along with an example diagram, are provided below. Flow rates are <u>NOT</u> required on the diagrams.
		Provide the PFD number assigned to the BOF steelmaking PFD. If the process is already shown on a PFD provided elsewhere in this survey, provide the PFD number and review the following list for completeness. If you need assistance, call the Technical Information Help Line at (800) 357-7075.

BOF steelmaking PFD-_____

Process Flow Diagram Checklist

Be sure	✓
All BOF steelmaking operations are included. Include those operations which do not generate process wastewater.	G
All air pollution control systems are included. Label each system as being either wet, semi- wet, or dry. Water streams for all wet or semi-wet air pollution control systems must be shown, including all recycle streams and all treatment processes within recycle loops.	G
Any recycle or reuse of process wastewater or other waters is indicated clearly on the diagram.	G
Any in-process wastewater treatment or reuse technologies are indicated. Show and label all treatment units and all recycle loops.	G
Significant losses of water (e.g., evaporation) are shown.	G
All materials entering each operation and all products and wastes exiting each operation are identified. Wastes include wastewater, sludges, baghouse dust, and point-source air emissions. Noncontact cooling water systems which do not contain process wastewater and do not discharge to process wastewater systems do not need to be included.	G
All process wastewater streams are identified. When sources and destinations of process wastewater are not shown on the diagram (i.e., the stream is entering from or exiting to a location not shown on the diagram), describe the source or destination (e.g., "from river" or "to wastewater treatment") and add the PFD number, when appropriate, where the stream's previous or next location can be seen.	G
The PFD number and your site ID number are written on the diagram.	G
If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.	G



Basic Oxygen Furnace Example Process Flow Diagram

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COMMENTS FOR SECTION 2F: BASIC OXYGEN FURNACE STEELMAKING

Cross reference your comments by question number and indicate the confidential status of your comment by checking () the box in the column titled "CBI" (Confidential Business Information). If you need additional space, photocopy this page before writing on it and number each copy in the space provided in the upper right corner.

Question Number	СВІ	Comment
	G	- Common
	G	
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SECTION 2G. ELECTRIC ARC FURNACE STEELMAKING

TECHNICAL INFORMATION HELP LINE: (800) 357-7075



IS ELECTRIC ARC FURNACE (EAF) STEELMAKING PERFORMED AT THIS SITE?

G YES (CONTINUE)

G No (Skip to Section 2H)

THROUGHOUT THIS SECTION, YOU WILL BE REQUIRED TO PROVIDE INFORMATION FOR <u>ALL</u> OPERABLE UNITS AND WATER SYSTEMS RELATED TO ELECTRIC ARC FURNACE STEELMAKING WHICH WERE ON SITE DURING 1997, INCLUDING UNITS AND WATER SYSTEMS WHICH MAY HAVE BEEN IDLE FOR AN EXTENDED PERIOD OF TIME DUE TO CIRCUMSTANCES SUCH AS MARKET CONDITIONS, MAJOR REBUILDS, OR LABOR DISPUTES. IF AN OPERABLE UNIT OR WATER SYSTEM WAS NOT IN OPERATION DURING 1997, SUBSTITUTE THE MOST RECENT CALENDAR YEAR WHEN SUCH CIRCUMSTANCES DID NOT EXIST. NOTE THE YEAR OF OPERATION AND THE CIRCUMSTANCES IN THE COMMENTS AT THE END OF THIS SECTION, AND PROVIDE DATA FROM THAT CALENDAR YEAR.

G сві	2G-1.	How many operable EAFs were on site during 1997?
G СВI	2G-2.	An EAF shop consists of a building or structure containing one or more electric furnaces and ancillary processes and equipment (e.g., scrap and/or DRI charging; lime, carbon, alloy and oxygen addition; furnace tapping; deslagging and slag handling; and primary and secondary air emission control equipment). This definition of an EAF shop is used for this survey. In the table below, provide a list of the operable EAF shops that were on site during 1997 . Use the site terminology or site designation for each EAF shop. Fill in each column with the site designation for each furnace at each shop.
	EAE Shor	Designation:

EAF Shop Designation:		
Individual Furnace		
Designations:		

		Section Copy of
	STOP	HOW MANY OPERABLE EAF SHOPS WERE ON SITE DURING 1997? COMPLETE A COPY OF THE REMAINDER OF THIS SECTION (QUESTIONS 2G-3 THROUGH 2G-17, AND A COMMENTS PAGE
		IF NECESSARY) FOR \underline{EACH} OPERABLE EAF SHOP. NUMBER EACH COPY OF QUESTIONS $2G-3$ THROUGH $2G-17$ IN THE SPACE PROVIDED AT THE TOP OF EACH PAGE.
G сві	2G-3.	Provide the designation of this EAF shop. The EAF shop designation should correspond with a response to Question 2G-2.
G сві	2G-4.	What year was steel first produced at this EAF shop?
G СВІ	2G-5. a.	What is the total rated capacity of raw steel for this shop in tons per year?
		tons/year (to three significant figures, e.g., 753,000 tons/year)
G сві	b.	What is the annual number of heats used to determine the total rated capacity?
		heats/year
G сві	2G-6.	Provide annual production data for this EAF shop for each of the five calendar years 1993 through 1997.

Year	EAF Steel Produced (tons/year)
1993	
1994	
1995	
1996	
1997	

Section Copy of _	
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G СВІ	2G-7.	Check (✓) <u>ALL</u> raw materials and alloying elements which were charged to the EAFs in this shop during 1997 . If you have a previously prepared list of raw materials and alloying elements charged to the EAFs in this shop, attach it to the survey, write your site ID (shown on the cover page of Part A) are this question number on the upper right corner of the list, check (✓) the box to the right, and SKIP to	nd
		Question 2G-8.	G

G	Steel scrap	G	Other (specify):
G	Iron pigs	G	Other (specify):
G	Molten iron	G	Other (specify):
G	Direct-reduced iron	G	Other (specify):
G	High iron briquettes	G	Other (specify):
G	Lime	G	Other (specify):
G	Dolomite	G	Other (specify):
G	Carbon	G	Other (specify):
G	Aluminum	G	Other (specify):
G	Boron	G	Other (specify):
G	Chromium	G	Other (specify):
G	Cobalt	G	Other (specify):
G	Copper	G	Other (specify):
G	Lead	G	Other (specify):
G	Magnesium	G	Other (specify):
G	Manganese	G	Other (specify):
G	Molybdenum	G	Other (specify):
G	Nickel	G	Other (specify):
G	Niobium (Columbium)	G	Other (specify):
G	Selenium	G	Other (specify):
G	Silicon	G	Other (specify):
G	Sulfur	G	Other (specify):
G	Tantalum	G	Other (specify):
G	Titanium	G	Other (specify):
G	Tungsten	G	Other (specify):
G	Vanadium	G	Other (specify):
G	Zirconium	G	Other (specify):

		Section Copy of Copy of
	STOP	How many OPERABLE EAFS IN THIS SHOP WERE ON SITE DURING 1997 ? COMPLETE A COPY OF QUESTION 2G-8 FOR EACH OPERABLE EAF IN THIS SHOP. NUMBER EACH COPY OF QUESTION 2G-8 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2G-8 IS ONE PAGE LONG.
Э СВI	2G-8. a.	Provide the site designation for this EAF. The EAF designation should correspond with a response to Question 2G-2.
Э СВІ	b.	What is the typical heat size of this furnace in tons? tons per he
Э СВІ	C.	What is the typical tap-to-tap time? minutes
Э СВІ	d.	What type of air cleaning system is on this furnace?
		Dry. Furnace off-gases are cleaned with no water addition to the gas cleaning system.
		Semi-Wet. Furnace off-gases are conditioned with moisture prior to processing in electrostatic precipitators or baghouses. This includes addition of water ahead of the air pollution control device(s) for gas temperature control (e.g., peak temperature shaving).
		Wet. Furnace off-gases are cleaned with a wet scrubbing system for air pollution control.
		G Dry G Semi-wet G Wet G Other (specify):

HOW MANY OPERABLE WET AIR POLLUTION CONTROL (WAPC) SYSTEMS WERE ON SITE ATT SHOP DURING 1997? A WAPC SYSTEM MAY INCLUDE MULTIPLE DEVICES SERVING THE SAME PROCESSING COMPLETE A COPY OF QUESTION 2G-9 FOR EACH OPERABLE WAPC SYSTEM. NUMBER EACH COPY OF C 2G-9 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2G-9 IS THREE PAGES LON COMPLETE THESE QUESTIONS FOR SEMI-WET AIR POLLUTION CONTROL DEVICES. IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION CONTROL DEVICES. IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION CONTROL ASSOCIATED WITH ANY EAFS IN THIS SHOP, OR TO THE RIGHT AND SKIP TO QUESTION 2G-19. If information for system is already provided elsewhere in this survey, answer Question 2G-2. If information for system is already provided elsewhere in this survey, answer Question 2G-9.a., check the box right, and SKIP to Question 2G-10. G CBI b. This WAPC system controls emissions from which of the following processes? Check (//) A apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI c. Indicate the devices in this WAPC system. Check (//) ALL that apply. G Venturi scrubber G Spray chamber G Packed tower G Spray chamber G Packed tower G Evaporation chamber G Other (specify): G Separator G Other (specify): G Recirculated (continue) G Once-through (SKIP to Question 2G-9.I.) Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating G Yes (continue) G No (SKIP to Question 2G-9.I.)		1		Section Copy	of	Сору	of
2G-9 In THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2G-9 IS THREE PAGES LON COMPLETE THESE QUESTIONS FOR SEMI-WET AIR POLLUTION CONTROL DEVICES. IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION CONTROL ASSOCIATED WITH ANY EAFS IN THIS SHOP, CH TO THE RIGHT AND SKIP TO QUESTION 2G-10. G CBI 2G-9.a. Provide the designation(s) of the EAF(s) and all other operations associated with this WAPC EAF designation(s) should correspond with response(s) to Question 2G-2. If information for system is already provided elsewhere in this survey, answer Question 2G-9.a., check the boy right, and SKIP to Question 2G-10. G CBI b. This WAPC system controls emissions from which of the following processes? Check (//) Apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI c. Indicate the devices in this WAPC system. Check (//) ALL that apply. G Venturi scrubber G Demister G Spray chamber G Packed tower G Evaporation chamber G Other (specify): G CBI d. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).		STOP					
G CBI 2G-9.a. Provide the designation(s) of the EAF(s) and all other operations associated with this WAPC EAF designation(s) should correspond with response(s) to Question 2G-2. If information for system is already provided elsewhere in this survey, answer Question 2G-9.a., check the borright, and SKIP to Question 2G-10. G CBI b. This WAPC system controls emissions from which of the following processes? Check (/) A apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI c. Indicate the devices in this WAPC system. Check (/) ALL that apply. G Venturi scrubber G Spray chamber G Spray chamber G Packed tower G Separator G Other (specify): G Separator G Separator G Other (specify): G Separator G Separator G Other (specify): G Recirculated (continue) G Recirculated (continue) G Noce-through (SKIP to Question 2G-9.1.)			2G-9 IN THE SPACE PROVIDED IN THE UPPE	ER RIGHT CORNER. NOTE	: QUESTION 2G-9		
G CBI 2G-9.a. Provide the designation(s) of the EAF(s) and all other operations associated with this WAPC EAF designation(s) should correspond with response(s) to Question 2G-2. If information for system is already provided elsewhere in this survey, answer Question 2G-9.a., check the box right, and SKIP to Question 2G-10. G CBI b. This WAPC system controls emissions from which of the following processes? Check (/) A apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI c. Indicate the devices in this WAPC system. Check (/) ALL that apply. G Venturi scrubber G Spray chamber G Spray chamber G Packed tower G Evaporation chamber G Separator G Other (specify): G Separator					IATED WITH ANY EA	AFS IN THIS SHOP, C	неск тне вох
EAF designation(s) should correspond with response(s) to Question 2G-2. If information for system is already provided elsewhere in this survey, answer Question 2G-9.a., check the bourght, and SKIP to Question 2G-10. G CBI b. This WAPC system controls emissions from which of the following processes? Check (/) A apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI c. Indicate the devices in this WAPC system. Check (/) ALL that apply. G Venturi scrubber G Spray chamber G Spray chamber G Packed tower G Evaporation chamber G Other (specify): G Separator G Separator G Other (specify): G Separator G Separator G Other (specify): G Separator G Separator G Separator G Other (specify): G Separator							
apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI C. Indicate the devices in this WAPC system. Check (✓) ALL that apply. G Venturi scrubber G Demister G Spray chamber G Packed tower G Evaporation chamber G Other (specify): G Separator G Other (specify): G CBI d. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm). dscfm G CBI e. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2G-9.I.) G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating G Yes (continue)	G СВІ	2G-9. a.	EAF designation(s) should correspond system is already provided elsewhere in	with response(s) to (Question 2G-2.	If information for	r this WAPC
apply. G Raw material, handling, preparation, and storage G Gas cleaning for primary furnace emission G Secondary furnace emission controls G Building evacuation G Other (specify): G CBI C. Indicate the devices in this WAPC system. Check (✓) ALL that apply. G Venturi scrubber G Demister G Spray chamber G Packed tower G Evaporation chamber G Other (specify): G Separator G Other (specify): G CBI d. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm). dscfm G CBI e. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2G-9.I.) G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating G Yes (continue)							
G Venturi scrubber G Spray chamber G Spray chamber G Evaporation chamber G Separator G Other (specify): G Separator G Other (specify): G CBI d. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).	G сві	b.	 apply. G Raw material, handling, preparation G Gas cleaning for primary furnace en G Secondary furnace emission control G Building evacuation 	n, and storage mission	llowing process	es? Check (✔) <u>/</u>	LL that
G CBI e. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2G-9.I.) G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating G Yes (continue)	G сві	C.	G Venturi scrubberG Spray chamberG Evaporation chamber	G D G P G C	emister acked tower other (specify):		
G CBI e. Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2G-9.I.) G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating G Yes (continue)	G сві	d.	Provide the gas or air flow through the	system in dry standa	rd cubic feet pe	r minute (dscfm)	
G Recirculated (continue) G Once-through (SKIP to Question 2G-9.I.) G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating G Yes (continue)			dscfm				
G Yes (continue)	G сві	e.	G Recirculated (continue)	-			
	G сві	f.	G Yes (continue)	g., chemical addition	ns) performed in	the recirculating	j loop?
G CBI g. Does the treatment in the recirculating loop also treat wastewater from other processes? G No - Dedicated treatment G Yes - Treatment shared with other processes	G сві	g.	G No - Dedicated treatment	•	water from othe	er processes?	
Specify the processes:			Specify the processes:				

			Section Copy _	of	Сору	of
		COMPLETE A COPY OF QUESTION	2G-9 FOR <u>EACH</u> (OPERABLE WAPC	SYSTEM.	
G сві	2G-9. h.	Check (✓) <u>ALL</u> treatment units and/or t	reatment processe	es which are inclu	ded in the recirc	ulating loop.
	(cont.)	G Clarifiers	G	Oil skimmers		
		G Classifiers	G	Scale pits		
		G Cooling towers	G	Sludge dewateri		cuum filter,
		G Earthen Lagoons	_	pressure filtration	•	
		G Lined (specify liner type):		Water filters (e.g	., sand, multime	dia, etc.)
		G Clay	G	Water softeners		
		G Synthetic	G	Other (specify):		
		G Other (specify):	G	Other (specify):		
		G Unlined		None		
G сві	i.	Indicate chemical additions to the water	recirculation syst	em. Check (✓) A	LL that apply.	
		G Acid	-	Scale inhibitor		
		G Caustic (sodium hydroxide)	G	Surfactant		
		G Corrosion inhibitor	G	Other (specify):		
		G Lime		Other (specify):		
		G Polymer		None		
G СВІ	j.	Provide the design flow of water throug	h the recirculating	loop.		gpm
G сві	k.	Provide the average recirculation rate of	f water through th	e WAPC system	and period of op	eration.
		gpm	hours per c	day	day	s per year
G СВІ	l.	Provide the average rate at which new the influent flow rate; for recirculating sy		,		ems, provide
		gallons pe	er day		day	s per year

			Section Copy	of	Сору	_ of
	-	COMPLETE A COPY OF QU	IESTION 2G-9 FOR EACH OPE	RABLE WAPC SYSTEM	l .	
G сві	2G-9.m. (cont.)	Indicate <u>ALL</u> sources for water and The percentages should add to 1		age of water contribu	uted by eacl	n source.
		G Plant service water (city, wel elsewhere on site)	l, or surface water which has	s not been used		%
		G Noncontact cooling water (sp	pecify manufacturing proces	es(es)):		%
		G Treated process wastewater	(specify manufacturing prod	cess(es)):		%
		G Untreated process wastewat	er (specify manufacturing p	rocess(es)):		%
		G Treated storm water (specify area(s)):			- -	%
		G Untreated storm water (specarea(s)):			າ	%
		G Other (specify):				%
					- I <u>100</u>	
G СВІ	n.	Provide the average discharge raprovide the blowdown rate) gpm	ate from the system and peri		recirculatino	•
					•	
		OR:	gallons per da	y <u> </u>	days	per year
G сві	0.					
		Indicate the destination of waster G Discharge to treatment (spec	_	` '		
		^	cify treatment system):	. ,		
		G Discharge to treatment (specG Discharge without treatment	by pipeline, sewer, or other by pipeline, sewer, or other	conveyance to surfa	ce water (s _i	pecify
		 G Discharge to treatment (spector) G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment 	by pipeline, sewer, or other	conveyance to surfa	ce water (sp W (specify of	pecify designation
		 G Discharge to treatment (special points) G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location 	by pipeline, sewer, or other bring location if applicable):	conveyance to surfa	ce water (sp W (specify of	pecify designation
		 G Discharge to treatment (spector) G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monitoring G Zero discharge or alternative G Deep-well injection 	by pipeline, sewer, or other bring location if applicable): a disposal methods:	conveyance to surfa	ce water (sp W (specify of W (specify	pecify designation
		 G Discharge to treatment (specific of the control of	by pipeline, sewer, or other bring location if applicable): a disposal methods:	conveyance to surfa	ce water (sp W (specify of W (specify	pecify designation
		 G Discharge to treatment (specific permit monitoring location) G Discharge without treatment for permit monitoring location G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monitoring G Zero discharge or alternative G Deep-well injection G Evaporation (specify me G Percolation pond 	by pipeline, sewer, or other bring location if applicable): a disposal methods:	conveyance to surfa	ce water (sp W (specify of W (specify	pecify designation
		 G Discharge to treatment (specific points): G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monitoring G Zero discharge or alternative G Deep-well injection G Evaporation (specify me G Percolation pond G Spray irrigation 	by pipeline, sewer, or other bring location if applicable): a disposal methods:	conveyance to surfa	ce water (sp W (specify of W (specify	pecify designation
		G Discharge to treatment (specify destination/disp	by pipeline, sewer, or other bring location if applicable): a disposal methods:	conveyance to surfa	ce water (sp W (specify of	pecify designation
		G Discharge to treatment (specify destination) G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location G Discharge without treatment designation for permit monito G Zero discharge or alternative G Deep-well injection G Evaporation (specify me G Percolation pond G Spray irrigation G Contract hauled (specify disposal rate, in (specify destination/disp) G Incineration	by pipeline, sewer, or other by pipeline, sewer, or other by pipeline, sewer, or other n): by pipeline, sewer, or other by pipeline, sewer, or other bring location if applicable): disposal methods: thod):	conveyance to surfa	ce water (specify of the control of	pecify designation

		Section Copy of Copy of
	STOP	HOW MANY OPERABLE PRIMARY FURNACE EMISSIONS SEMI-WET AIR POLLUTION CONTROL (SWAPC) SYSTEMS WERE ON SITE AT THIS EAF SHOP DURING 1997? A SWAPC SYSTEM MAY INCLUDE MULTIPLE DEVICES SERVING THE SAME PROCESSING UNIT.
		Complete a copy of Question 2G-10 for <u>EACH</u> operable SWAPC system. Number each copy of Question 2G-10 in the space provided in the upper right corner. Note: Question 2G-10 is three pages long.
		IF YOUR SITE DOES NOT HAVE SEMI-WET AIR POLLUTION CONTROL ASSOCIATED WITH ANY EAFS IN THIS SHOP, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2G-11.
G СВІ	2G-10. a.	Provide the designation(s) of the EAF(s) associated with this SWAPC system. EAF designation(s) should correspond with response(s) to Question 2G-2.
G сві	b.	Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).
		dscfm
G СВІ	C.	How much water is applied to the gas stream for conditioning upstream of the air pollution control system?
		gallons per ton of steel produced
G сві	d.	Is an excess of water applied (i.e., more water is applied than can be absorbed by the gas stream)? G Yes G No
G СВІ	e.	Indicate why water is applied to the gas stream. G Temperature control G Other (specify):
G СВІ	f.	Is the system operated in a zero-discharge mode on a sustained basis (i.e., no water is discharged from this system)? G Yes G No
G сві	g.	Is the water recirculated or applied once-through? G Recirculated (continue) G Once-through (SKIP to Question 2G-10.n.)
G сві	h.	Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop? G Yes (continue) G No (SKIP to Question 2G-10.I.)

	2G-10.i. (cont.)	Does the treatment in the recirculating G No - Dedicated treatment G Yes - Treatment shared with other				
		G No - Dedicated treatment	loop also treat was	stewater from othe	r processes?	
,		G Yes - Treatment shared with other			i processes:	
			processes			
		Specify the processes:				
G сві j	j.	Check (✓) <u>ALL</u> treatment units and/or t	reatment process	es which are includ	led in the recirc	ulating loop.
		G Clarifiers	G	Oil skimmers		
		G Classifiers	G	Scale pits		
		G Cooling towersG Earthen Lagoons	G	Sludge dewatering pressure filtration.		cuum filter,
		G Lined (specify liner type)	G	Water filters (e.g.,	sand, multimed	dia, etc.)
		G Clay	G	Water softeners		
		G Synthetic	G	Other (specify): _		
		G Other (specify):	G	Other (specify): _		
		G Unlined	G	None		
G CBI	k.	Indicate chemical additions to the water	r recirculation syst	em. Check (🗸) AL	<u>L</u> that apply.	
		G Acid	G	Scale inhibitor		
		G Caustic (sodium hydroxide)	G	Surfactant		
		G Corrosion inhibitor	G	Other (specify): _		
		G Lime	G	Other (specify): _		
		G Polymer	G	None		
G СВІ	l.	Provide the design flow of water throug	h the recirculating	loop.		gpm
G CBI r	m.	Provide the average recirculation rate of	of water through th	e WAPC system a	nd period of ope	eration.
		gpm	hours per d	day	day	s per year
G CBI r	n.	Provide the average rate at which new the influent flow rate; for recirculating sy				ems, provide
		gallons po	er day		day	s per year

			Section Copy	of	Сору	of
		COMPLETE A COPY OF QUEST	ION 2G-10 FOR <u>EACH</u> OPE	RABLE SWAPC SYSTE	И.	
G сві	2G-10.o. (cont.)	Indicate <u>ALL</u> sources for water add The percentages should add to 100		tage of water contribu	ited by each	source.
		G Plant service water (city, well, collection elsewhere on site)	or surface water which ha	s not been used		%
		G Noncontact cooling water (spec	cify manufacturing proces	ss(es)):		%
		G Treated process wastewater (s	pecify manufacturing pro	cess(es)):		%
		G Untreated process wastewater	(specify manufacturing p	rocess(es)):		%
		G Treated storm water (specify marea(s)):				%
		G Untreated storm water (specify area(s)):				%
		G Other (specify):				%
					100	
G CBI	γ.	Provide the average discharge rate provide the blowdown rate) gpm	hours per day	- ,	days p	
		OR:	gallons per da		days p	er year
G СВІ	q.	Indicate the destination of wastewa	tor diagharge or blowdow			
		(- I)ischarge to treatment (specifi	•	` '		
		 G Discharge to treatment (specify G Discharge without treatment by outfall number): 	v treatment system):			
		G Discharge without treatment by	v treatment system): pipeline, sewer, or other	conveyance to surface	ce water (spe	ecify
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by 	r pipeline, sewer, or other pipeline, sewer, or other pipeline, sewer, or other pipeline, sewer, or other	conveyance to POTV	ce water (spe V (specify de	ecify esignatior
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): 	r treatment system): pipeline, sewer, or other pig location if applicable):	conveyance to POTV	ce water (spe V (specify de	ecify esignatior
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitoring G Zero discharge or alternative did G Deep-well injection 	repipeline, sewer, or other pipeline, sewer,	conveyance to Surface conveyance to POTV conveyance to PrOTV	ce water (spe V (specify de W (specify	ecify esignatior
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitoring G Zero discharge or alternative did G Deep-well injection G Evaporation (specify method) 	r treatment system): pipeline, sewer, or other	conveyance to Surface conveyance to POTV conveyance to PrOTV	ce water (spe V (specify de W (specify	ecify esignatior
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitoring G Zero discharge or alternative did G Deep-well injection G Evaporation (specify method) G Percolation pond 	r treatment system): pipeline, sewer, or other	conveyance to Surface conveyance to POTV conveyance to PrOTV	ce water (spe V (specify de W (specify	ecify esignatior
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitoring G Zero discharge or alternative dientification G Deep-well injection G Evaporation (specify methods G Percolation pond G Spray irrigation 	r treatment system): pipeline, sewer, or other	conveyance to Surface conveyance to POTV conveyance to PrOTV	ce water (spe V (specify de W (specify	ecify esignation
		 G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitoring G Zero discharge or alternative did G Deep-well injection G Evaporation (specify method) G Percolation pond 	repipeline, sewer, or other pipeline, sewer,	conveyance to surface conveyance to POTV	ce water (specify de W (specify er gallon	ecify esignatior
		G Discharge without treatment by outfall number): G Discharge without treatment by for permit monitoring location): G Discharge without treatment by designation for permit monitorin G Zero discharge or alternative dia G Deep-well injection G Evaporation (specify method G Percolation pond G Spray irrigation G Contract hauled (specify disposal rate, included)	repipeline, sewer, or other pipeline, sewer,	conveyance to surface conveyance to POTV	ce water (spectify deal) W (specify) er gallon	ecify esignatior

G CBI 2G-11.a. Are any dry air pollution control (DAPC) systems associated with any EAFs in this shop?

G Yes (continue)

G No (SKIP to Question 2G-12)

G CBI b. Indicate the process associated with DAPC systems in this EAF shop and the furnace designation(s) associated with each process (designation(s) should correspond with response(s) to Question 2G-2). Check (✓) ALL that apply. For each process checked, indicate the type of DAPC system.

	Process	EAF Designation	Type of DAPC System
G	Raw material handling, preparation, and storage associated with the EAFs		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Gas cleaning for primary furnace emission		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Secondary furnace emissions controls		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Building evacuation		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):

		Section Copy of
G СВІ	2G-12. a.	Is any water used for quenching or cooling of slag produced at this EAF shop? G Yes (continue) G No (SKIP to Question 2G-13)
G СВI	b.	Indicate the location of EAF slag quenching operations. Check (✓) <u>ALL</u> that apply. G At or near the EAF shop G Remotely located from the EAF shop G Both
G сві	C.	What is the typical average monthly volume of water used for slag quenching or cooling? Provide a best engineering estimate if an actual value is not available.
		gallons per month
G СВІ	d.	What was the typical average monthly amount of EAF slag produced in 1997 ? Provide a best engineering estimate if an actual value is not available.
		tons per month
G СВІ	e.	Indicate <u>ALL</u> sources of water used for slag quenching or cooling. G Plant service water (city, well, or surface water which has not been used elsewhere on site)
		G Noncontact cooling water (specify manufacturing process(es)):
		G Treated process wastewater (specify manufacturing process(es)):
		G Untreated process wastewater (specify manufacturing process(es)):
		G Treated storm water (specify manufacturing process(es) or collection area(s)):
		G Untreated storm water (specify manufacturing process(es) or collection area(s)):
		G Other (specify):

	STOP		CONTROL SYSTEMS, VACUUM DEGASSES FROM EAF STEELMAKING OPERATION			DW MANY
			ION 2G-13 FOR <u>EACH</u> EAF WASTEW D IN THE UPPER RIGHT CORNER. NOT			
			URCES WHICH CONTRIBUTE PROCESS RS, CASTERS, OR STORM WATER, CHEC			
	2G-13.	Provide information for this E	AF shop and related on-site wa	ıstewater gene	erating sources.	
G сві	a.	vacuum degassers, casters, copy of this question for <u>EAC</u> G Raw material preparation G Slag quenching G Equipment cleaning and	n and storage			
G сві	b.	wastewater. If a list is readily written on the upper right cor	pollutants known or believed to vavailable, attach it to the surve ener. If a chemical or pollutant of to clean and wash equipment), known.	y with this que originates from	stion number and a commercial cle	your site ID aning
G сві	c.	Provide the wastewater flow	rate and period of discharge as	sociated with t	he source checke	d above.
		gpm	hours per day		days	s per year
		OR:	gallons per da	av	days	

			Section Copy	of	Сору	of
		SOURCE GENERATING PROCESS	TION 2G-13 FOR <u>EACH</u> ELECTRIC S WASTEWATER NOT ASSOCIATED T DEGASSERS, CASTERS, OR STORN	WITH AIR POLLUT		
G СВІ	2G-13. d.	Indicate the destination of this w	astewater stream. Check ((✓) <u>ALL</u> that a	ipply.	
	(cont.)	G Discharge to treatment (spe	• • •			
		G Discharge without treatment outfall number):				specify
		G Discharge without treatment for permit monitoring location	t by pipeline, sewer, or other			/ designation
		G Discharge without treatment designation for permit monit				
		G Zero discharge or alternative	,			
		G Deep-well injection				
		G Evaporation (specify me	ethod):			
		G Percolation pond				
		G Spray irrigation				
		G Contract hauled				
			ncluding transportation): \$ __ posal method): <u> </u>			
		G Incineration				
		G Other (specify):				

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G CBI 2G-14. Provide information on any major process modifications and/or shut downs which have occurred at this EAF shop since 1993. Provide EAF shop and furnace designations in the description. Designation(s) should correspond with response(s) to Question 2G-2.

Shut Down or Modification?	Date	Description

G CBI 2G-15. Provide information on any publicly announced process modifications and/or shut downs planned to occur during the next five years (1998 to 2002) at this EAF shop. Provide EAF shop and furnace designations in the description. Designation(s) should correspond with response(s) to Question 2G-2.

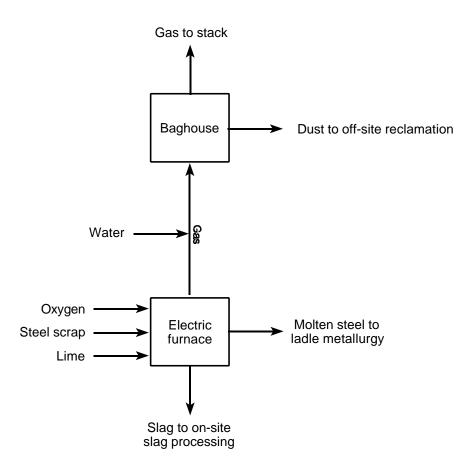
Shut Down or Modification?	Anticipated Date	Description

Indicate <u>ALL</u> pollution prevention (waste reduction) or management practices implemented by your site for this EAF shop and describe the practice as it is implemented. Describe all processes where byproducts and wastes are recovered for reuse or sold as a raw material feedstock. Discuss the percent recovered. Provide EAF shop and furnace designations in the description. Designation(s) should correspond with response(s) to Question 2G-2.

	Management Practices	Description of Practice
G	Management of spillage and losses from raw material handling operations associated with this EAF shop	
G	Management of runoff from raw material storage piles associated with this EAF shop	
G	Management of fugitive discharges of process wastewaters and materials to EAF shop noncontact cooling water (NCCW) systems	
G	Surveillance and corrective action programs for oil discharges from large NCCW flows associated with this EAF shop	
G	Collection and treatment and/or disposal of storm water from any areas associated with the EAFs (specify manufacturing processes or other collection areas in the description)	
G	Control of runoff/leachate and ground water contamination from EAF slag processing adjacent to the furnaces	
G	Control of runoff from EAF slag processing remote from the furnace	
G	Collection and treatment and/or disposal of landfill leachate from any landfills associated with EAF shop wastes	
G	Collection and treatment and/or disposal of contaminated ground waters associated with this EAF shop	
G	Disposal of process wastewater from other sources by electrode cooling, peak shaving, or slag quenching (specify sources in the description)	
G	Other (specify):	

-		Section Copy of	
CBI ;	2G-17.	Attach a process flow diagram (PFD) that shows the EAF steelmaking process and the water use associated with the process. You are NOT required to create a new PFD if an existing diagram wi suffice. Number the diagram in the upper right corner, and include your site ID number (as shown the cover page of Part A). Specific instructions for including the PFD, along with an example diagrame provided below. Flow rates are NOT required on the diagrams. Provide the PFD number assigned to the EAF steelmaking PFD. If the process is already show a PFD provided elsewhere in this survey, provide the PFD number and review the following for completeness. If you need assistance, call the Technical Information Help Line at (800) 357-	ill n on ram, vn on y list
		EAF steelmaking PFD	
		Process Flow Diagram Checklist	
		Be sure	✓
		All EAF steelmaking operations are included. Include those operations which do not generate process wastewater.	G

Be sure	1	
All EAF steelmaking operations are included. Include those operations which do not generate process wastewater.	G	
All air pollution control systems are included. Label each system as being either wet, semi- wet, or dry. Water streams for all wet or semi-wet air pollution control systems must be shown, including all recycle streams and all treatment processes within recycle loops.	G	
Any recycle or reuse of process wastewater or other waters is indicated clearly on the diagram.	G	
Any in-process wastewater treatment or reuse technologies are indicated. Show and label all treatment units and all recycle loops.	G	
Significant losses of water (e.g., evaporation) are shown.	G	
All materials entering each operation and all products and wastes exiting each operation are identified. Wastes include wastewater, sludges, baghouse dust, and point-source air emissions. Noncontact cooling water systems which do not contain process wastewater and do not discharge to process wastewater systems do not need to be included.	G	
All process wastewater streams are identified. When sources and destinations of process wastewater are not shown on the diagram (i.e., the stream is entering from or exiting to a location not shown on the diagram), describe the source or destination (e.g., "from river" or "to wastewater treatment") and add the PFD number, when appropriate, where the stream's previous or next location can be seen.	G	
The PFD number and your site ID number are written on the diagram.	G	
If you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.	G	



Electric Arc Furnace Example Process Flow Diagram

Section Copy	of	Copy	of	

COMMENTS FOR SECTION 2G: ELECTRIC ARC FURNACE STEELMAKING

Cross reference your comments by question number and indicate the confidential status of your comment by checking () the box in the column titled "CBI" (Confidential Business Information). If you need additional space, photocopy this page before writing on it and number each copy in the space provided in the upper right corner.

Question Number	СВІ	Comment
Humber	G	Comment
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SECTION 2H. VACUUM DEGASSING

TECHNICAL INFORMATION HELP LINE: (800) 357-7075



IS VACUUM DEGASSING PERFORMED AT THIS SITE?

G YES (CONTINUE)

G No (Skip to Section 2I)

Throughout this section, you will be required to provide information for <u>ALL</u> operable units and water systems related to vacuum degassing which were on site during 1997, including units and water systems which may have been idle for an extended period of time due to circumstances such as market conditions, major rebuilds, or labor disputes. If an operable unit or water system was not in operation during 1997, substitute the most recent calendar year when such circumstances did not exist. Note the year of operation and the circumstances in the comments at the end of this section, and provide data from that calendar year.



HOW MANY <u>OPERABLE VACUUM DEGASSING PROCESSES</u> WERE ON SITE DURING **1997**? IF MULTIPLE VACUUM DEGASSING STATIONS SHARE A COMMON VACUUM SYSTEM, OR IF THERE ARE MULTIPLE SMALL DEGASSING STATIONS IN ONE SHOP (E.G., A SET OF VACUUM ARC REMELT (VAR) STATIONS), THESE STATIONS MAY BE COUNTED AS ONE PROCESS. _____

COMPLETE A COPY OF QUESTION 2H-1 FOR <u>EACH</u> OPERABLE VACUUM DEGASSING PROCESS. NUMBER EACH COPY OF QUESTION 2H-1 IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2H-1 IS TWO PAGES LONG.

G CBI	2H-1. a.	Indicate which type of vacuum	degassing operation is	performed at this process.
-------	-----------------	-------------------------------	------------------------	----------------------------

- **G** Stream degassing (specify type):
 - G Ladle-to-mold degassing
 - G Ladle-to-ladle degassing
 - **G** Tap degassing
 - G Other (specify): _
- **G** Recirculation degassing (specify type):
 - G Dortmund-Horder-Huttenunion process (D-H)
 - G Ruhrstahl-Heraeus process (R-H)
 - G RH-OB process
 - G Other (specify): ___
- **G** Vacuum ladle degassing (specify type):
 - **G** Induction stirring
 - **G** Vacuum-oxygen decarburization (VOD)
 - G Other (specify): _
- **G** Vacuum degassing with supplemental reheating (specify):
 - **G** Ladle refining furnace (refining with arc reheating)
 - G Vacuum arc remelt (VAR)
 - **G** Modified vacuum induction (Therm-I-Vac)
 - G Other (specify):
- G Other (specify):

G CBI b. Provide the designation by which your site refers to this vacuum degassing process.

	Сору				
		COMPLETE A COPY OF QUESTION 2H-1 FOR <u>EACH</u> OPERABLE VACUUM DEGASSING PROCESS.			
G сві	2H-1.c. (cont.)	Provide the designation of the BOF/EAF shop which is associated with this vacuum degassing process. The designation should correspond with a response provided in Question 2F-2 (BOF) or 2G-2 (EAF).			
G СВІ	d.	What year was vacuum degassing first performed at this process?			
G сві	e.	What is the total rated capacity of this vacuum degassing process in tons of steel degassed per year?			
		tons/year (to three significant figures, e.g., 565,000 tons/year)			
G сві	f.	What is the annual number of heats used to determine the total rated capacity?			
		heats/year			
G CBI	g.	Indicate (✓) ALL function(s) of this vacuum degassing process. G Alloy additions G Temperature control G Deoxidation (O₂) G Hydrogen removal (H₂) G Decarburization G Desulfurization G Microcleanliness G Inclusion morphology G Other (specify):			
G СВІ	h.	Provide annual production data for this vacuum degassing process for each of the five calendar years 1993 through 1997.			

Year	Steel Refined (tons/year)
1993	
1994	
1995	
1996	
1997	

on the upper right corner of	·		site ID (shown on the cover page color, check (\checkmark) the box to the right, and	-	
	Other (specify):	G	Aluminum	G	
	Other (specify):	G	Boron	G	
	Other (specify):	G	Chromium	G	
	Other (specify):	G	Cobalt	G	
	Other (specify):	G	Copper	G	
	Other (specify):	G	Lead	G	
	Other (specify):	G	Magnesium	G	
	Other (specify):	G	Manganese	G	
_	Other (specify):	G	Molybdenum	G	
	Other (specify):	G	Nickel	G	
	Other (specify):	G	Niobium (Columbium)	G	
_	Other (specify):	G	Selenium	G	
	Other (specify):	G	Silicon	G	
_	Other (specify):	G	Sulfur	G	
_	Other (specify):	G	Tantalum	G	
_	Other (specify):	G	Titanium	G	
	Other (specify):	G	Tungsten	G	
_	Other (specify):	G	Vanadium	G	
	Other (specify):	G	Zirconium	G	



HOW MANY OPERABLE WET AIR POLLUTION CONTROL (WAPC) SYSTEMS OR OPERABLE VACUUM

SYSTEMS (WHICH CAN BE MADE UP OF A SET OF BAROMETRIC CONDENSERS OR STEAM EJECTORS) WERE ON SITE AT A

VACUUM DEGASSING PROCESS DURING 1997? A WAPC OR VACUUM SYSTEM MAY INCLUDE MULTIPLE DEVICES SERVING
THE SAME PROCESSING UNIT.

COMPLETE A COPY OF QUESTION 2H-3 FOR <u>EACH</u> OPERABLE WAPC SYSTEM OR <u>EACH</u> OPERABLE VACUUM SYSTEM. NUMBER EACH COPY OF QUESTION 2H-3 IN THE SPACE PROVIDED IN THE UPPER RIGHT CORNER. NOTE: QUESTION 2H-3 IS THREE PAGES LONG.

IF YOUR SITE DOES NOT HAVE WET AIR POLLUTION CONTROL OR WET VACUUM SYSTEMS ASSOCIATED WITH ANY VACUUM DEGASSING PROCESSES, CHECK THE BOX TO THE RIGHT AND SKIP TO QUESTION 2H-4.

G CBI 2H-3.a.

Provide the designation(s) of the vacuum degassing process(es) and all other operations associated with this WAPC system or vacuum system. Process designation(s) should correspond with response(s) to Question 2H-1.b. If information for this WAPC system is already provided elsewhere in this survey, answer Question 2H-3.a., check the box to the right, and SKIP to Question 2H-4.

G CBI b. Indicate the devices in this system. Check (✓) ALL that apply.

- **G** WAPC device (indicate the device(s), then continue):
 - **G** Venturi scrubber
 - G Spray chamber
 - **G** Evaporation chamber
 - **G** Separator
 - **G** Demister
 - G Packed tower
 - G Other (specify): __
- **G** Vacuum system (indicate the device(s), then SKIP to Question 2H-3.d):
 - **G** Barometric condensers
 - G Steam ejectors
 - G Other (specify):

G CBI c. This WAPC system controls emissions from which of the following processes? Check (✓) <u>ALL</u> that apply.

- **G** Raw material handling, preparation, and storage
- **G** Building evacuation
- G Other (specify):

G CBI d. Provide the gas or air flow through the system in dry standard cubic feet per minute (dscfm).

_____dscfm

G CBI e. Is the water recirculated or applied once-through?

- **G** Recirculated (continue)
- **G** Once-through (SKIP to Question 2H-3.I.)

G CBI f. Is any treatment and/or conditioning (e.g., chemical additions) performed in the recirculating loop?

- G Yes (continue)
- **G** No (SKIP to Question 2H-3.j.)

			of
Сомя	PLETE A COPY OF QUESTION 2H-3 FOR EACH OPE	RABLE WAPC	SYSTEM OR <u>EACH</u> OPERABLE VACUUM SYSTEM.
2H-3. g.	Does the treatment in the recirculating loo	p also treat wa	stewater from other processes?
(cont.)	G No - Dedicated treatment	20000	
	G Yes - Treatment shared with other pro	cesses	
	Specify the processes:		
h.	Check (✓) <u>ALL</u> treatment units and/or trea	itment process	ses which are included in the recirculating loop
	G Clarifiers	G	Oil skimmers
	G Classifiers	G	
	G Cooling towers	G	Sludge dewatering units (e.g., vacuum filter,
	G Earthen Lagoons	_	pressure filtration, etc.)
	G Lined (specify liner type):		Water filters (e.g., sand, multimedia, etc.)
	G Clay	_	Water softeners
	G Synthetic		Other (specify):
	G Other (specify):		Other (specify):
	G Unlined	G	None
i.	Indicate chemical additions to the water re	circulation sys	tem. Check (✔) <u>ALL</u> that apply.
	G Acid	G	Scale inhibitor
	G Caustic (sodium hydroxide)	G	Surfactant
	G Corrosion inhibitor	G	Other (specify):
	G Lime	G	Other (specify):
	G Polymer	G	None
j.	Provide the design flow of water through the	ne recirculating	g loopgpı
k.	Provide the average recirculation rate of w	ater through th	ne system.

____ hours per day

Provide the average rate at which new water is added to the system (for once-through systems, provide the influent flow rate; for recirculating systems, provide the makeup flow rate).

G CBI I.

__ gpm

_____ gallons per day

_____ days per year

_____ days per year

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OUP,		•	

COMPLETE A COPY OF QUESTION 2H-3 FOR EACH OPERABLE WAPC SYSTEM OR EACH OPERABLE VACUUM SYSTEM.

2 CRI	2H-3.m. (cont.)	Indicate <u>ALL</u> sources for water The percentages should add	ter addition. Provide the percentage of water contributed to 100 percent.	ned by each source.
		G Plant service water (city, elsewhere on site)	, well, or surface water which has not been used	%
		G Noncontact cooling water	er (specify manufacturing process(es)):	%
		G Treated process wastew	vater (specify manufacturing process(es)):	%
		G Untreated process waste	ewater (specify manufacturing process(es)):	%
			pecify manufacturing process(es) or other collection	- %
		G Untreated storm water (s	specify manufacturing process(es) or other collection	%
				%
		, , , ,		I 100 %
		rate).		
		gpm		days per year
		gpm	• •	days per year days per year
G СВІ	0.	gpm OR:	·	days per year
Э сві	0.	gpm OR: Indicate the destination of wa	gallons per day	days per year at apply.
G СВІ	0.	gpm OR: Indicate the destination of wa G Discharge to treatment (G Discharge without treatment)	gallons per day astewater discharge or blowdown. Check (✓) ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surface.	days per year at apply.
Э СВІ	O.	gpm OR: Indicate the destination of wa G Discharge to treatment (s G Discharge without treatment outfall number):	gallons per day astewater discharge or blowdown. Check () <u>ALL</u> the (specify treatment system): nent by pipeline, sewer, or other conveyance to surface the pipeline, sewer, or other conveyance to POT\	days per year at apply.
Э СВІ	O.	gpm OR: Indicate the destination of war G Discharge to treatment (see G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location. G Discharge without treatment for permit monitoring location.	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surface the pipeline, sewer, or other conveyance to POTV station): nent by pipeline, sewer, or other conveyance to ProTV station):	days per year at apply. ce water (specify N (specify designation W (specify
Э СВІ	0.	gpm OR: Indicate the destination of war G Discharge to treatment (G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring local G Discharge without treatment designation for permit mediane.	gallons per day astewater discharge or blowdown. Check (🗸) ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction by pipeline, sewer, or other conveyance to POTV station):	days per year at apply. ce water (specify N (specify designation W (specify
Э СВІ	O.	gpm OR: Indicate the destination of war G Discharge to treatment (G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring local G Discharge without treatment designation for permit mediane.	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction): nent by pipeline, sewer, or other conveyance to POTN cation): nent by pipeline, sewer, or other conveyance to ProTn conitoring location if applicable):	days per year at apply. ce water (specify N (specify designation W (specify
Э СВІ	O.	gpm OR: Indicate the destination of war G Discharge to treatment (see G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring local designation for permit medicing for permit medicing for designation for permit medicing G Deep-well injection	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction): nent by pipeline, sewer, or other conveyance to POTN cation): nent by pipeline, sewer, or other conveyance to ProTn conitoring location if applicable):	days per year at apply. ce water (specify N (specify designation W (specify
Э СВІ	0.	gpm OR: Indicate the destination of war G Discharge to treatment (see G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring local designation for permit medicing for permit medicing for designation for permit medicing G Deep-well injection	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction by pipeline, sewer, or other conveyance to POTV cation): nent by pipeline, sewer, or other conveyance to POTV cation): nent by pipeline, sewer, or other conveyance to PrOT conitoring location if applicable): ative disposal methods:	days per year at apply. ce water (specify N (specify designation W (specify
G СВІ	O.	gpm OR: Indicate the destination of war G Discharge to treatment (G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring location for permit medical permit medical graphs of the control of the contro	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction by pipeline, sewer, or other conveyance to POTV cation): nent by pipeline, sewer, or other conveyance to POTV cation): nent by pipeline, sewer, or other conveyance to PrOT conitoring location if applicable): ative disposal methods:	days per year at apply. ce water (specify N (specify designation W (specify
G СВІ	0.	gpm OR: Indicate the destination of wark G Discharge to treatment (standard outfall number): G Discharge without treatment for permit monitoring location for permit modesignation for permit medical forms of the control of the con	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction): nent by pipeline, sewer, or other conveyance to POTN eation): nent by pipeline, sewer, or other conveyance to ProTheonitoring location if applicable): ative disposal methods:	days per year at apply. ce water (specify N (specify designation W (specify
Э СВІ	0.	gpm OR: Indicate the destination of war G Discharge to treatment (G Discharge without treatment outfall number): G Discharge without treatment for permit monitoring local G Discharge without treatment designation for permit medical G Deep-well injection G Evaporation (specify G Percolation pond G Spray irrigation G Contract hauled (specify destination)	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction by pipeline, sewer, or other conveyance to POTV cation): nent by pipeline, sewer, or other conveyance to POTV cation): nent by pipeline, sewer, or other conveyance to PrOT conitoring location if applicable): ative disposal methods:	days per year at apply. ce water (specify N (specify designation W (specify
Э СВІ	O.	gpm OR: Indicate the destination of wark G Discharge to treatment (state of the destination of wark of the designation of the designation for permit monitoring local G Discharge without treatment of the designation for permit medical of the designation for permit medical of the designation of th	gallons per day astewater discharge or blowdown. Check () ALL the (specify treatment system): nent by pipeline, sewer, or other conveyance to surfaction): nent by pipeline, sewer, or other conveyance to POTN cation): nent by pipeline, sewer, or other conveyance to PrOT conitoring location if applicable): ative disposal methods: y method): te, including transportation): \$	days per year at apply. ce water (specify N (specify designation W (specify er gallon

2H-6

G CBI 2H-4.a. Are any dry air pollution control (DAPC) systems associated with any vacuum degassing processes on site?

G Yes (continue)

G No (SKIP to Question 2H-5)

G CBI b. Indicate the process(es) associated with DAPC systems and the vacuum degassing process designation associated with each process (designation(s) should correspond with response(s) to Question 2H-1.b.). Check (✓) <u>ALL</u> that apply. For each process checked, indicate the type of DAPC system.

	Process	Vacuum Degassing Process Designation	Type of DAPC System
G	Raw material handling, preparation, and storage associated with vacuum degassing		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Vacuum degassing emissions		G Fabric filter (i.e., baghouse)G Electrostatic precipitatorG Other (specify):
G	Building evacuation associated with vacuum degassing		G Fabric filter (i.e., baghouse)G Electrostatic precipitatorG Other (specify):
G	Other (specify):		 G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse)G Electrostatic precipitatorG Other (specify):
G	Other (specify):		G Fabric filter (i.e., baghouse) G Electrostatic precipitator G Other (specify):

				Сору	of
	STOP	EXCLUDING WAPC SYSTEMS, VACUUM SYSTEMS FROM VACUUM DEGASSING OPERATIONS ARE PRESE		WASTEWATER	R SOURCES
		COMPLETE A COPY OF QUESTION 2H-5 FOR EACH EACH COPY OF QUESTION 2H-5 IN THE SPACE PROVPAGES LONG.			
		IF YOUR SITE HAS NO VACUUM DEGASSING SOURCE: A WAPC SYSTEM, A VACUUM SYSTEM, OR STORM V 2H-6.			
	2H-5.	Provide information for the vacuum degassing sources.	process and related on-site waste	water gene	rating
G СВІ	a.	Indicate the source of process wastewater NO system, or storm water. If there is more than of for EACH vacuum degassing source. G Raw material handling, preparation, and so G Slag quenching G Equipment cleaning and washdown water G Other (specify):	one source at this site, complete a	controls, a copy of this	vacuum question
G СВІ	b.	Provide a list of chemicals or pollutants known wastewater. If a list is readily available, attach written on the upper right corner. If a chemica solution (e.g., solutions used to clean and was product and the product code, if known.	it to the survey with this question r I or pollutant originates from a cor	number and nmercial cle	your site ID eaning
G СВІ	c.	Indicate the wastewater flow rate associated w	ith the source checked above.		
		gpm	hours per day	days	s per year
		OR:	gallons per day	days	s per year

		Copy of	
		COMPLETE A COPY OF QUESTION 2H-5 FOR <u>EACH</u> VACUUM DEGASSING SOURCE GENERATING PROCESS WASTEWATER NOT ASSOCIATED WITH A WAPC SYSTEM, A VACUUM SYSTEM, OR STORM WATER.	
G СВІ	2H-5. d.	Indicate the destination of this wastewater stream. Check (✓) <u>ALL</u> that apply.	
	(cont.)	G Discharge to treatment (specify treatment system):	
		G Discharge without treatment by pipeline, sewer, or other conveyance to surface water (specify outfall number):	
		G Discharge without treatment by pipeline, sewer, or other conveyance to POTW (specify designation for permit monitoring location):	on
		G Discharge without treatment by pipeline, sewer, or other conveyance to PrOTW (specify designation for permit monitoring location if applicable):	
		G Zero discharge or alternative disposal methods:	
		G Deep-well injection	
		G Evaporation (specify method):	
		G Percolation pond	
		G Spray irrigation	

(specify disposal rate, including transportation): \$______ per gallon

G Other (specify):

(specify destination/disposal method):

G Contract hauled

G Incineration

G сві	2H-6.	Provide information on any major process modifications and/or shut downs which have occurred at the
		vacuum degassing processes since 1993. Provide vacuum degassing process designations in the
		descriptions. Designation(s) should correspond with response(s) to Question 2H-1.b.

Shut Down or Modification?	Date	Description

Provide information on any publicly announced process modifications and/or shut downs planned to occur during the next five years (1998 to 2002) at the vacuum degassing processes. Provide vacuum degassing process designations in the description. Designation(s) should correspond with response(s) to Question 2H-1.b.

Shut Down or Modification?	Anticipated Date	Description

Indicate <u>ALL</u> pollution prevention (waste reduction) or management practices implemented by your site for the vacuum degassing stations and describe the practice as it is implemented. Describe all processes where by-products and wastes are recovered for reuse or sold as a raw material feedstock. Discuss the percent recovered. Provide vacuum degassing process designations in the description. Designation(s) should correspond with response(s) to Question 2H-1.b.

	Management Practices	Description of Practice
G	Management of spillage and losses from raw material handling operations associated with the vacuum degassing stations	
G	Management of runoff from raw material or product storage piles associated with the vacuum degassing stations	
G	Management of fugitive discharges of process wastewaters and materials to vacuum degassing noncontact cooling water (NCCW) systems	
G	Surveillance and corrective action programs for oil discharges from large NCCW flows associated with the vacuum degassing stations	
G	Collection and treatment and/or disposal of storm water from any areas associated with vacuum degassing (specify manufacturing processes or other collection areas in the description)	
G	Collection and treatment and/or disposal of landfill leachate from any landfills associated with vacuum degassing wastes	
G	Collection and treatment and/or disposal of contaminated ground water associated with vacuum degassing wastes	
G	Other (specify):	
G	Other (specify):	

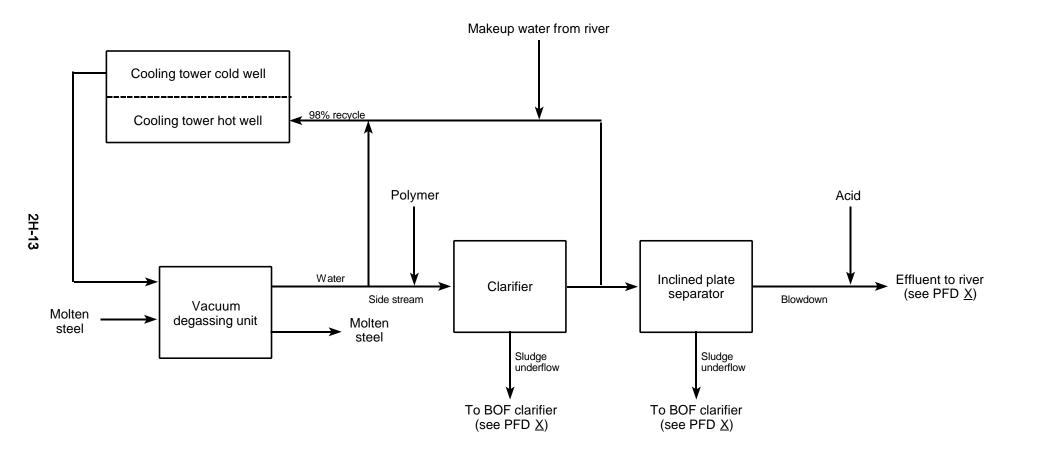
Attach a process flow diagram (PFD) that shows the vacuum degassing processes and the water use associated with the processes. You are <u>NOT</u> required to create a new PFD if an existing diagram will suffice. Number the diagram in the upper right corner, and include your site ID number (as shown on the cover page of Part A). Specific instructions for including the PFD, along with an example diagram, are provided below. Flow rates are <u>NOT</u> required on the diagrams.

Provide the PFD number assigned to the vacuum degassing PFD. If the process is already shown on a PFD provided elsewhere in this survey, provide the PFD number and review the following list for completeness. If you need assistance, call the Technical Information Help Line at (800) 357-7075.

Vacuum degassing PFD	egassing PFD-
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Process Flow Diagram Checklist

be sure	•
All vacuum degassing operations are included. Include those operations which do not generate process wastewater	G
All air pollution control systems are included. Label each system as being either wet or dry. Water streams for all wet air pollution control systems must be shown, including all recycle streams and all treatment processes within recycle loops.	G
Any recycle or reuse of process wastewater or other waters is indicated clearly on the diagram.	G
Any in-process wastewater treatment or reuse technologies are indicated. Show and label all creatment units and all recycle loops.	G
Significant losses of water (e.g., evaporation) are shown.	G
All materials entering each operation and all products and wastes exiting each operation are dentified. Wastes include wastewater, sludges, baghouse dust, and point-source air emissions. Noncontact cooling water systems which do not contain process wastewater and do not discharge to process wastewater systems do not need to be included.	G
All process wastewater streams are identified. When sources and destinations of process wastewater are not shown on the diagram (i.e., the stream is entering from or exiting to a ocation not shown on the diagram), describe the source or destination (e.g., "from river" or 'to wastewater treatment") and add the PFD number, when appropriate, where the stream's previous or next location can be seen.	G
The PFD number and your site ID number are written on the diagram.	G
f you believe that the diagram should be treated as confidential, stamp it "Confidential" or write "Confidential" or "CBI" across the top. If any diagram is not marked "Confidential", it will be considered nonconfidential under 40 CFR Part 2, Subpart B.	G



Vacuum Degassing Example Process Flow Diagram

COMMENTS FOR SECTION 2H: VACUUM DEGASSING

Cross reference your comments by question number and indicate the confidential status of your comment by checking () the box in the column titled "CBI" (Confidential Business Information). If you need additional space, photocopy this page before writing on it and number each copy in the space provided in the upper right corner.

Question Number	СВІ	Comment
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